

AD-755 505

COMBAT JOB REQUIREMENTS FOR THE AIR
CAVALRY AEROSCOUT PILOT AND AEROSCOUT
OBSERVER

William L. Warnick

Human Resources Research Organization

Prepared for:

Office, Chief of Research and Development (Army)

December 1972

DISTRIBUTED BY:

NTIS

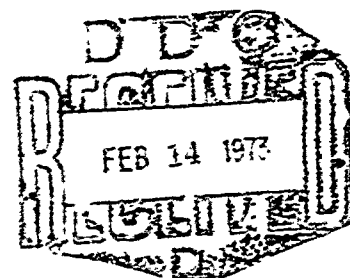
National Technical Information Service
U. S. DEPARTMENT OF COMMERCE
5285 Port Royal Road, Springfield Va. 22151

Technical
Report
72-37
-humRRO-TR-72-37

HumRRO

Combat Job Requirements for the Air Cavalry Aeroscout Pilot and Aeroscout Observer

William L. Warnick



HUMAN RESOURCES RESEARCH ORGANIZATION
300 North Washington Street • Alexandria, Virginia 22314

Approved for public release; distribution unlimited.

December 1972

Prepared for

Office of the Chief of Research and Development
Department of the Army
Washington, D.C. 20310

Reproduced by
NATIONAL TECHNICAL
INFORMATION SERVICE
U.S. Department of Commerce
Springfield, VA 22151

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D		
(Security classification of title, body of abstract and indexing notation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate Name)		2a. REPORT SECURITY CLASSIFICATION
Human Resources Research Organization 300 North Washington Street Alexandria, Virginia 22314		Unclassified
2. REPORT TITLE		2b. GROUP
COMBAT JOB REQUIREMENTS FOR THE AIR CAVALRY AEROSCOUPT PILOT AND AEROSCOUPT OBSERVER		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
Technical Report		
5. AUTHOR(S) (First name, middle initial, last name)		
William L. Karnick		
6. REPORT DATE	7a. TOTAL NO OF PAGES	7b. NO OF REFS
December 1972	55	67
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S)	
19-73-C-0004	HumRRO-TR-72-37	
9. PROJECT NO.	9b. OTHER REPORT NO. (S): (Any other numbers that may be assigned this report)	
2Q062107A745		
c.		
d.		
10. DISTRIBUTION STATEMENT		
Approved for public release; distribution unlimited.		
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
Work Unit AIRSCOUT: Research performed by HumRRO Division No. 2, Fort Knox, Kentucky		Office, Chief of Research and Development Department of the Army Washington, D.C. 20310
13. ABSTRACT		
<p>The objectives of this research were to formulate and describe the skills and knowledges required for combat job performance for the aeroscout pilot and aeroscout observer in an Air Cavalry Unit, and to determine how much emphasis should be placed on each skill or knowledge area during training. Job inventory lists were administered to 14 combat-experienced aeroscout pilots and 15 aeroscout observers. The respondents judged each skill or knowledge item in terms of its importance for job performance in combat. This information provides a basis for organizing content and subject emphasis of formal training programs, and provides school personnel and field commanders with a basis for evaluation and development of such.</p>		

DD FORM 1473
1 NOV 65

Unclassified

Security Classification

Unclassified

Security Classification

14. KEY WORDS	LINE A		LINE B		LINE C	
	ROLE	WT	ROLE	WT	ROLE	WT
Aeroscout observer						
Aeroscout pilot						
Air cavalry						
Army personnel						
Job analysis						
Job requirements						
Knowledges and skills						
Military personnel						
Pilot training						
Reconnaissance						
Training						

Unclassified

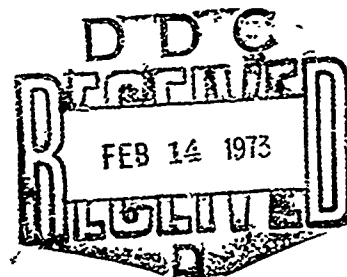
Security Classification

ib

HumRRO
Technical
Report
72-37

Combat Job Requirements for the Air Cavalry Aeroscout Pilot and Aeroscout Observer

William L. Warnick



HumRRO Division No. 2
Fort Knox, Kentucky

HUMAN RESOURCES RESEARCH ORGANIZATION

Work Unit AIRSCOUT

December 1972

Approved for
public release;
distribution
unlimited.

Prepared for

Office of the Chief of Research and Development
Department of the Army
Washington, D.C. 20310

Reproduced by
NATIONAL TECHNICAL
INFORMATION SERVICE
U S Department of Commerce
Springfield VA 22151

ic

The Human Resources Research Organization (HumRRO) is a nonprofit corporation established in 1969 to conduct research in the field of training and education. It is a continuation of The George Washington University Human Resources Research Office. HumRRO's general purpose is to improve human performance, particularly in organizational settings, through behavioral and social science research, development, and consultation. HumRRO's mission in work performed under contract with the Department of the Army is to conduct research in the fields of training, motivation, and leadership.

The findings in this report are not to be construed as an official Department of the Army position, unless so designated by other authorized documents.

Published
December 1972
by
HUMAN RESOURCES RESEARCH ORGANIZATION
300 North Washington Street
Alexandria, Virginia 22314

Distributed under the authority of the
Chief of Research and Development
Department of the Army
Washington, D.C. 20319

FOREWORD

The objective of HumRRO Work Unit AIRSCOUT was to identify the training requirements, and specify training methods and concepts for training materials that will be necessary to support an aeroscout pilot and aeroscout observer training program.

This research was conducted under AIRSCOUT Work Sub-Unit I, Identification of Training Requirements. This report provides a listing and ratings of the knowledges and skills essential for combat job performance for the aeroscout pilot and aeroscout observer in an Air Cavalry unit. The results are shown in Appendix A, "List of Combat Job Requirements for the Air Cavalry Aeroscout Pilot," and Appendix B, "List of Combat Job Requirements for the Air Cavalry Aeroscout Observer."

An additional report resulting from Work Sub-Unit I, *Aeroscout Pilot and Aeroscout Observer Responses to the Air Cavalry Tactical Information Survey*, was concerned with documenting the various methods and techniques of tactical employment of aeroscouts in the Vietnam combat environment. Its purpose was to provide additional guidelines and recommendations for training program development based upon the combat experiences of aeroscout pilots and aeroscout observers.

Warrant Officer Derry! Jones, a scout pilot, and Staff Sergeant Ronald P. Pelkey, an aeroscout observer, were temporarily assigned to the Work Unit to aid in the preparation of the skills and knowledges requirement lists. Both men were selected on the basis of their combat experiences as scout pilot and scout observer in an Air Cavalry unit in Vietnam. WO Jones was an instructor pilot for the aeroscout observer course conducted by the U.S. Army Armor School. Sergeant Pelkey was an instructor in reconnaissance with the U.S. Training Center, Armor.

The requirements lists were critiqued by LTC Gordon Stone of the Command and Staff Department, U.S. Army Armor School. LTC Stone volunteered his time and effort on behalf of Work Unit AIRSCOUT.

Work Unit AIRSCOUT research was conducted by HumRRO Division No. 2, Fort Knox, Kentucky. The Division Director is Dr. Donald F. Haggard. The Work Unit Leader was William L. Warnick.

Military support was provided by the U.S. Army Armor Human Research Unit. The Military Chief at the time the research was conducted was LTC Joseph A. DeAngelis.

HumRRO research is conducted under Army Contract DAHC 19-73-C-0004. Army Training Research is performed under Army Project 2Q062107A745.

Meredith P. Crawford
President
Human Resources Research Organization

SUMMARY AND CONCLUSIONS

MILITARY PROBLEM

The U.S. Army Armor School recommended to the U.S. Continental Army Command that HumRRO provide an analytical approach to identifying the skills and knowledges necessary for the aeroscout pilot and aeroscout observer. All previous training for aeroscout pilots and observers concerning Air Cavalry operations has been conducted by the combat units to which the personnel were assigned, and much of the instruction consisted of on-the-job training.

The advent of the helicopter as a tactical weapon in Vietnam added a third dimension to ground warfare. This new dimension reflected the formation of Air Cavalry units that required new skills and knowledges. It became necessary to identify these new skills and knowledges in order to form a basis for future training program development, since no formal training programs for Air Cavalry personnel existed.

RESEARCH OBJECTIVES

The objectives of the research were to (a) formulate and describe the skills and knowledges required for combat job performance for the aeroscout pilot and aeroscout observer assigned to an Air Cavalry unit, and (b) obtain information on the importance of each skill or knowledge as a means of indicating how much emphasis should be placed on each during training.

APPROACH

A survey of the literature was made. The initial job requirements lists for both job positions were developed by a combat-experienced aeroscout pilot and aeroscout observer working in conjunction with a HumRRO staff member. Interviews were conducted with combat-experienced aeroscout personnel and Armor School personnel, and provisional job inventory lists of the skills and knowledges required for combat performance were prepared. The lists were then critiqued by staff members of the Army School who were responsible for the conduct of Air Cavalry training. Their comments were reviewed and the inventory lists were modified to reflect their suggestions.

With the cooperation of HumRRO Division No. 6, all units at Fort Rucker, Alabama, were queried as to whether they had any personnel with extensive combat experience in Vietnam as scout pilots or scout observers in an Air Cavalry unit. The same procedure was followed at Fort Knox, Kentucky. Those who responded were screened, by a HumRRO staff member, as to their combat experience and job assignments to ensure that the respondents were experienced scout pilots and observers. Each individual received a thorough briefing on the procedures for rating the items in the inventory lists. A HumRRO staff member was present while the ratings were being made. In some cases, respondents completed the ratings on their own time.

All respondents received a debriefing and were given the opportunity to discuss any problems encountered in completing the ratings, or to clarify or expand on any topic in the inventory lists.

The inventory lists were administered to 14 aeroscout pilots and 15 aeroscout observers. Using a five-point rating scale, the respondents judged each skill or knowledge item in terms of its importance for combat job performance.

From these data, an average rating was computed for each item in the inventory lists. All items presented to the respondents are listed in Appendices A and B, along with their average rating.

RESULTS

The ratings on "Information Reporting" indicate that aeroscouts are required to provide information on almost everything they see. Aeroscouts must be extremely proficient in interpreting and reporting accurately the information they gather. The training of visual perception skills should be heavily emphasized in any aeroscout training program.

Working with Air Force tactical air elements was a normal part of an aeroscout's job in Vietnam. Therefore, formal training in the procedures to use when working with Air Force tactical air elements should be stressed: pilots even felt that it would be important to be able to direct Tactical Air Command (TAC) airstrikes. The importance of knowing how to make a bomb damage assessment report was emphasized by the pilots.

Ratings concerning the various organizational levels of Armor, Infantry, Mechanized Infantry, Armored Cavalry, and Air Cavalry elements indicate that emphasis should be directed toward operations of the Air Cavalry Squadron, Air Cavalry Troop, and Air Cavalry Scout Section. Ratings at the higher organizational levels indicate that this information would be useful, but not essential, for job performance.

All areas dealing with Air Cavalry reconnaissance operations were rated high in importance. Rated in the "useful information" category were chemical and radiological survey operations, employment of night vision devices, and procedures for collecting and disseminating intelligence material.

Pilots rated items dealing with aircraft weapons subsystems as important except in areas dealing with performance of maintenance. This rating could be due to the fact that the aircraft crew chief and observer perform these tasks.

The handling of demolitions within the aircraft was rated as a very essential task. Safety parameters and procedures used for all types of fire support were deemed very essential for scout pilots. All other tasks dealing with fire support and demolitions and grenades were rated essential, but these two were deemed slightly more critical than other tasks.

Communication capabilities of the Air Cavalry Troop, Forward Air Controller (FAC) and TAC, Tactical Operations Center, and supported ground elements, were rated higher than any other command levels.

Map reading and navigation skills generally were rated lower than might be expected. This was probably because of the way scouts operated in Vietnam, where much of the navigation and map reading was left to the Cobra gunship or the high aircraft. Another factor in the lower rating may have been that scouts usually operated in the same areas, and became so familiar with these areas that—except in emergencies—it was not necessary to use map reading or navigational skills to any large extent.

Major emphasis in adjusting indirect fire support was in the use of correct forward observer procedures. Sensing and adjusting of tactical air direct fire was deemed essential, as were all items in the visual detection and recognition area. Stress on treatment of puncture wounds, burns, fractures, and shock was emphasized under First Aid skills.

Pilots felt that the aeroscout observer should be able to fly the aircraft in an emergency when the pilot is unable to perform his duties due to injuries or other incapacitating factors.

Aeroscout observers rated map reading and navigation skills lower than would normally be expected. Observers rated visual detection and recognition skills very high, indicating that this is the area in which the observer performs his major job functions.

All observers felt that they should have the minimum requirements for flying the aircraft in an emergency.

Aeroscout observer ratings, in general, parallel those of the aeroscout pilots; if anything, observer ratings were slightly lower for items in the inventory. Pilots and observers indicated that the observer's main function while in combat is to observe.

CONCLUSIONS AND IMPLICATIONS

The information obtained provides: (a) a basis for organizing the content and subject emphasis for formal training programs in terms of combat job skills and knowledges required; (b) school personnel and field commanders with a useful basis for evaluation and revision of whatever training programs now exist; and (c) a basis for development of training programs for the aeroscout pilot and aeroscout observer.

The list of job requirements, based on military sources and ratings, forms a comprehensive, detailed, and experienced-based statement of the duties the aeroscout pilot and aeroscout observer need to perform in accomplishing their combat missions and the skills needed to perform their duties effectively.

The list of job requirements can be used to give students undergoing training an indication of the goals and aims of Air Cavalry scout training and a preview of what will be required on the job.

The job inventory lists can serve as a basis for developing proficiency tests for use by Air Cavalry units.

Since the job requirements listed in this report were derived from combat experience in a low-intensity conflict, future research would be needed to determine what additional skills and knowledges, if any, would be required for aeroscout personnel in a mid-intensity conflict.

The present MOS descriptions should be reviewed to identify job requirements necessary for personnel assigned to Air Cavalry units that should be added for accurate depiction of these jobs.

CONTENTS

	Page
Background	2
Research Objective	2
Research Procedure	3
Developing Initial List of Job Requirements	3
Obtaining Field Ratings	4
Respondents	4
Procedure for Field Ratings	4
Data Analysis and Results	5
Combat Job Requirements	5
Discussion	6
Final Lists of Job Requirements	6
Bibliography	8
Appendices	
A List of Combat Job Requirements for the Air Cavalry Aeroscout Pilot	12
B List of Combat Job Requirements for the Air Cavalry Aeroscout Observer	34

Combat Job Requirements for the
Air Cavalry Aeroscout Pilot and
Aeroscout Observer

BACKGROUND

Prior to the inception of the prototype aeroscout observer course at the U.S. Army Armor School in November 1970, there was no formal training program for Air Cavalry aeroscout pilots or aeroscout observers. (Since that time a formal course for both aeroscout pilots and aeroscout observers has been instituted.) Aviators who served as aeroscout pilots usually were assigned to Air Cavalry combat units in Vietnam directly from Basic Flight Training. The Basic Flight Training curricula included many of the subjects required for job performance as an Air Cavalry aeroscout pilot, but the training was directed primarily at training pilots, not aeroscouts.

All Air Cavalry units conducted some type of "in house" training for newly assigned pilots; in Vietnam much of this was on-the-job training. Aeroscout observers in Vietnam were also normally trained on the job. No formal approach to identification of the job requirements for the aeroscout pilot and aeroscout observer had previously been undertaken.

The Armor School in a staff study¹ concerning Air Cavalry operations identified many of the problem areas, and supported the need for additional training of Air Cavalry aviators and aeroscout observers before arrival in Air Cavalry units. The Armor School recommended to the U.S. Continental Army Command (CONARC) that HumRRO provide research support in the area of Air Cavalry operations. CONARC established a research requirement, and HumRRO Work Unit AIRSCOUT was established in July 1970.

The research objective of Work Unit AIRSCOUT was to identify the training requirements and specify training methods and concepts for training materials that will be necessary to support an aeroscout pilot and aeroscout observer training program.

AIRSCOUT Work Sub-Unit I, Identification of the Training Requirements, is the subject of this report. An additional HumRRO report titled, *Aeroscout Pilot and Aeroscout Observer Responses to the Air Cavalry Tactical Information Survey*,² is also a product of Work Sub-Unit I. The objective of this report was to document the various methods and techniques which evolved from aeroscout employment in the Vietnam combat environment, and to provide an additional basis of information concerning performance of the combat job requirements and training of the Air Cavalry aeroscout pilot and aeroscout observer.

RESEARCH OBJECTIVE

The research discussed in this report has two objectives:

- (1) To analyze and describe the job requirements for the Air Cavalry aeroscout pilot and aeroscout observer.
- (2) To obtain information about the combat importance of each job duty, as a means of indicating which skills and knowledges should receive primary emphasis during training.

¹U.S. Army Armor School Staff Study, "Air Cavalry Training Programs at USAARMS/USAARMC," Chief, Bn/Bdr Tac Ops Division, 16 January 1969.

²William L. Warnick and Derryl Jones. *Aeroscout Pilot and Aeroscout Observer Responses to the Air Cavalry Tactical Information Survey*, HumRRO Research Product RP-D2-72-5, September 1972.

It was thought that such information would be of value in the following ways: (a) furnishing improved criteria for evaluating present and future training programs, and the qualifications, abilities, and performances of the aeroscout pilot and aeroscout observer; (b) enabling school and command personnel to improve curricula by bringing training into closer harmony with field and combat requirements; and (c) providing a basis for determining the relative combat importance of duties and skills to ensure training emphasis and priorities for curriculum development.

RESEARCH PROCEDURE

DEVELOPING INITIAL LIST OF JOB REQUIREMENTS

Pertinent literature was reviewed to determine what job duties and skills to include in compiling lists of requirements for the aeroscout pilot and aeroscout observer. The literature included relevant field manuals, technical manuals, research reports, and other miscellaneous sources.³

An experienced aeroscout pilot and aeroscout observer were assigned to the research project to assist in compiling the initial job requirements lists. Interviews were conducted with experienced Air Cavalry personnel, and coordination was effected with the personnel responsible for the development of Air Cavalry training at the Armor School.

In determining the research approach to be followed, it was decided that, because of constraints on the time frame and availability of manpower allocated to Work Unit AIRSCOUT, the job requirements for the aeroscout pilot concerning basic flight training would not be studied. The research approach decided upon was to identify those job requirements unique to job performance as an aeroscout pilot in an Air Cavalry unit. This approach made it possible to specify those additional training requirements for pilots completing basic flight training which would be required before assignment to an Air Cavalry unit.

Work Unit AIRSCOUT attempted to identify those areas concerning flight training which the aeroscout pilots felt should be augmented or included in the basic flight curriculum for pilots being assigned to Air Cavalry units. It was felt that identification of these areas would aid in promoting research being conducted on low-level flight training, such as that previously performed by HumRRO Division No. 6.⁴

All students attending the Aeroscout Observer Course of Instruction at the Armor School presently qualify as MOS 11D10 Armor Reconnaissance Specialists.⁵ This enables the graduates to be assigned to Armored Cavalry units as aeroscout observers. Upon completion of the Aeroscout Observer Course the individual qualifies for the MOS 11D2F. A previous HumRRO study⁶ identified the combat job requirements for the Armored Cavalry scout. Rather than try to specify the job requirements for the MOS 11D10 and MOS 11D2F, it was decided to define those job requirements that would be necessary in addition to those of the MOS 11D10 if the individual were assigned to an Air Cavalry unit as an aeroscout observer.

Preliminary lists of job duties and skills were developed for both jobs. The objective was to make note of virtually every skill and knowledge that the pilot and observer might

³ A list of the literature consulted in compiling the job requirements is included in this report.

⁴ Work Unit LOWENTRY, Methods for Improving Navigation Training for Low-Level Flight.

⁵ Army Subject Schedule 17-11D10, *MOS Technical Training and Refresher Training of Armor Reconnaissance Specialist MOS 11D10*, June 1969.

⁶ William L. Warnick and Robert A. Baker. *Determination of Combat Job Requirements for Armored Cavalry Platoon Personnel*, HumRRO Technical Report 92, December 1964.

need in order to perform their jobs effectively. An additional survey questionnaire was prepared in order to more fully explore and document the various methods and techniques employed by aeroscouts in a combat environment. This survey questionnaire was administered to all pilots and observers interviewed and is the subject of a separate report.⁷

The job requirements lists were submitted to the Armor School for review as to accuracy and comprehensiveness of content. The lists were then revised in accordance with suggestions received.

OBTAINING FIELD RATINGS

Respondents

Qualified aeroscout pilots and aeroscout observers at the U.S. Army Aviation Center, Fort Rucker, and U.S. Army Armor Center, Fort Knox, were visited in February and March 1971, to obtain military ratings on the combat value of the various job duties and skills.

All pilots and observers were interviewed beforehand to ensure that they actually performed the jobs of aeroscout pilot and aeroscout observer. All those interviewed had had combat experience in these jobs and many served in Air Cavalry units in various other job roles, such as gunship pilots, lift ship pilots, and doorgunners.

Fourteen aeroscout pilots and 15 aeroscout observers rated the job inventory form.

Procedure for Field Ratings

Each pilot and observer was fully briefed on the purpose of the research, and a HumRRO staff member was present to answer any questions. Each pilot and observer was instructed to evaluate the items in a list of job requirements according to a five-point rating scale which indicated the criticality of items within a major skill or knowledge area as follows:

- 5—Essential for effective combat performance
- 4—Essential, but not necessarily for combat performance
- 3—Useful information
- 2—Information of questionable value
- 1—Irrelevant or unnecessary information

For example, in rating the statement, "The aeroscout observer must be able to fly the aircraft in an emergency when the aeroscout pilot is unable to perform his duties due to injuries or other incapacitating factors," a pilot might rate the item a "3," which represents a useful skill, but not an essential one for aeroscout observers. A subitem under the above statement is, "Must be able to maintain a standard rate of climb of 500 feet per minute, with an allowable error of 100 FPM." The pilot could rate this item a "5," which represents a critical item, although he feels that flight skill training for the aeroscout observer is a "3" or "useful" item.

Each respondent was told to include and rate any skill or knowledge item which may not have been included in the job inventory lists, even though the item might not have a 5 rating.

⁷ Research Product, *Op cit.*

DATA ANALYSIS AND RESULTS

COMBAT JOB REQUIREMENTS

When all the ratings had been obtained, the data for each item on each list were tabulated and an average calculated for each item. This average numerical value, or endorsement index, described each item in terms of its combat importance for both job positions. All items and their ratings are shown on the final criterion list of job requirements in Appendices A and B.

The job requirements for the aeroscout pilot were organized under 13 major headings:

- Reporting Information
- Briefing the Forward Air Controller (FAC) Aircraft
- Directing Tactical Air Command (TAC) Airstrikes
- Bomb Damage Assessment (BDA) Report
- Air Cavalry Operations
- Aircraft Weapons Subsystem and Individual Weapons
- Aerial Armament, Artillery, Ammunition, Grenades, and Demolitions
- Communications
- Map Reading and Navigation Skills
- Aerial Adjustment of Indirect Fire
- Visual Detection and Recognition Skills
- First Aid
- Pilot Ratings of Minimum Flight Requirements for Aeroscout Observer

The job requirements for the aeroscout observer were organized under 20 major headings:

- Reporting Information
- Briefing the Forward Air Controller (FAC) Aircraft
- Directing Tactical Air Command (TAC) Airstrikes
- Bomb Damage Assessment (BDA) Report
- Air Cavalry Operations
- Aircraft Weapons Subsystem
- Aerial Armament, Artillery, Ammunition, Grenades, and Demolitions
- Communications
- Map Reading and Navigation Skills
- Aerial Adjustment of Indirect Fire
- Visual Detection and Recognition Skills
- First Aid
- Aeroscout Observer Ratings of Minimum Flight Requirements
- Aircraft Maintenance
- Aircraft Loading
- Combat Intelligence
- Emergency Procedures, Survival, Escape, and Evasion
- Individual Weapons
- Aircraft Instruments and Components
- Marking of Targets

An attempt was made to state the job requirements in behavioral terms specifying job goals and the information gathering, control, and physical behaviors required for each of the major areas specified.

DISCUSSION

FINAL LISTS OF JOB REQUIREMENTS

The results of the survey lists of "essential" job duties and skills are believed to represent the *minimum* requirements for the effective performance of the jobs of aeroscout pilot and aeroscout observer assigned to an Air Cavalry unit.

The procedures used—military review of the original lists for accuracy and comprehensiveness of content, and rating of every item by experienced personnel—have resulted in lists that are comprehensive, detailed, and realistic in terms of what is required in combat.

The job requirements, as stated, strongly reflect the type of Air Cavalry employment in Vietnam. The skill level requirements would become more difficult and require additional duties and increased proficiency levels in a mid-intensity warfare environment, as compared with a low-intensity environment such as Vietnam. With the advent of more sophisticated electronic surveillance and detection equipment, the job duties will require new skills. Additional land navigation instrumentation as well as all-weather and night operational capabilities will also impose more stringent training requirements. A "stand-off" target marking capability may require different methods and techniques of operation. As a result of studies being conducted concerning helicopter use, new methods and techniques of employment may evolve. Such developments would lead to a new dimension of Air Cavalry development that would necessitate higher skill levels than those previously required.

The job requirements as specified in this report can provide a basis from which present training programs can be compared to validate or change existing training requirements so they are compatible with combat job requirements. The job requirements lists can also provide a point of departure for future training program development.

The number of items in the job lists receiving numerical ratings of 2 (questionable value) or 1 (irrelevant or unnecessary) is extremely low. This is due to the careful selection of items included and compiled in the original lists by the experienced pilot and observer which augmented the research effort. Heavy reliance for selection of items was placed on the opinions and judgments of personnel qualified in Air Cavalry operations.

**BIBLIOGRAPHY
AND
APPENDICES**

BIBLIOGRAPHY

LITERATURE CONSULTED IN PREPARING THE JOB REQUIREMENTS LISTS

RESEARCH REPORTS

- Dawkins, Peter B. *Programed Instruction and Low Altitude Aerial Observation*, HumRRO Research Report 14, December 1964.
- Eckles, Andrien J., Scriggins, Thomas D., Woods, Arthur R. *A Preliminary Investigation of Helicopter vs. Tank Operations*, Research Analysis Corporation, Technical Paper RAC-TP-83, February 1963.
- Edmonds, Ed Moon, and Wright, Robert H. *The Effects of Map Scale on Position Location*, HumRRO Technical Report 65-9, September 1965.
- Goldstone, Gerald, and Oatman, Lynn C. *Air-To-Ground Range Estimation*, Technical Memorandum 2-62, Human Engineering Laboratories, Aberdeen Proving Grounds, Md., January 1962.
- Gray, T. Harrison, Waller, T. Gary, and Wright, Robert H. *Techniques for Low Altitude Navigation: Direction Estimation From Tactical Maps*, HumRRO Technical Report 67-4, April 1967.
- Gray, T. Harrison, Waller, T. Gary, and Wright, Robert H. *Speed and Accuracy of Addition in Normal Time and Decimal Time Systems*, HumRRO Technical Report 66-17, October 1966.
- Hesson, James M., and Thomas, Francis H. *Training Materials for Aerial Observer Instruction in Basic Visual Skills*. October 1962, (Supplement to HumRRO Technical Report 80, *Low Altitude Aerial Observation: An Experimental Course of Instruction*).
- Moler, Calvin G. *Air-To-Ground Target Detection and Identification*, Technical Memorandum 1-62, Human Engineering Laboratories, Aberdeen Proving Grounds, Md. January 1962.
- Powers, Theodore R. *Advanced Land Navigation: Development and Evaluation of a Prototype Program of Instruction*, HumRRO Technical Report 89, April 1964.
- Thomas, Francis H. *Low Altitude Aerial Observation: An Experimental Course of Instruction*, HumRRO Technical Report 30, October 1962.
- Waller, T. Gary, and Wright, Robert H. *The Effect of Training on Accuracy of Angle Estimation*, HumRRO Technical Report 65-8, August 1965.
- Wright, Robert H., and Waller, Thomas G. *Pictorial Navigation Displays and Low Altitude Navigation*, HumRRO Consulting Report, April 1964.

DEPARTMENT OF THE ARMY PUBLICATIONS

Map Reading, Field Manual (FM) 21-26, January 1969.

Adjustment of Artillery Fire by the Combat Soldier, Aerial Programed Text, Field Manual (FM) 3-135, 14 February 1969.

Air Cavalry Squadron, Field Manual (FM) 17-37, June 1969.

Survival, Evasion and Escape, Field Manual (FM) 21-76, March 1968.

Divisional Armored and Air Cavalry Units, Field Manual (FM) 17-36, November 1968.

Terrain Intelligence, Field Manual (FM) 30-10, October 1967.

The Armored Cavalry Regiment, Field Manual (FM) 17-95, May 1966.

Armed Helicopter Employment, Field Manual (FM) 1-17, July 1966.

Aerial Observer Training, Field Manual (FM) 1-80, April 1965.

Operators Manual: Army Model UH-1D/H Helicopter, Technical Manual (TM) 55-1520-210-10, May 1969.

Operators Manual: Helicopter, Observation OH-6A (Hughes), Technical Manual (TM) 55-1520-214-10, July 1969.

Operator's and Crew Member's Checklist: Army Model OH-6A Aircraft, Pilot's Checklist, Technical Manual (TM) 55-1520-CL, November 1969.

Instructors Administrative and Side Scan Training Manual, Technical Manual (TM) 1-380-1, October 1966.

Visual Search, Technical Manual (TM) 1-380-2, October 1966.

Target Recognition, Technical Manual (TM) 1-380-3, October 1966.

Geographic Orientation, Technical Manual (TM) 1-380-4, October 1966.

Target Location, Technical Manual (TM) 1-380-5, October 1966.

Criterion and Achievement Tests, Technical Manual (TM) 1-380-6, October 1966.

Army Subject Schedule 1-8, *Aerial Observation Training*, December 1968.

Army Subject Schedule 17-11D10, *MOS Technical Training and Refresher Training of Armor Reconnaissance Specialist MOS 11D10*, June 1969.

Program of Instruction, Conducted by U.S. Army Aviation School, Fort Rucker, Alabama:
2-1-C30, July 1969.
2-1-C32, July 1969.
2C-1981-B/2C-100BB, December 1969.

600-67A1F, January 1970.
2C-F9, January 1970.
2C-F14, January 1970.
2C-1981/100B-M, March 1970.
2C-F13, April 1970.

MISCELLANEOUS PUBLICATIONS

- Adams, William E., Capt. "Can You Shoot," *U.S. Army Aviation Digest*, vol. 12, no. 7, July 1966, pp. 19-21.
- Barrett, Thomas P., Capt. "Air Cavalry," *U.S. Army Aviation Digest*, vol. 16, no. 1, January 1970, pp. 32-34.
- Bellamy, Mark L., Capt. "The Fine Art of Aerial Observation," *U.S. Army Aviation Digest*, vol. 13, no. 5, May 1967, pp. 32-33.
- Brady, Patrick H., Capt. "Solo Missions," *U.S. Army Aviation Digest*, vol. 12, no. 7, July 1966, pp. 2-6.
- Branstuder, Phillip V., Capt. "Updating the Air Cavalry Squadron," *Armor*, vol. 79, no. 2, March-April 1970, pp. 41-43.
- Burroughs, Leonard H., Capt. "Dead Reckoning," *U.S. Army Aviation Digest*, vol. 12, no. 9, September 1966, pp. 11-13.
- Campbell, Bruce B., LTC. "A New Look for Army Aviation," *U.S. Army Aviation Digest*, vol. 15, no. 8, August 1969, pp. 32-35.
- Donaldson, Charles W., Capt. "The Cavalry-Air Cavalry Team," *Armor*, vol. 78, no. 5, September-October 1969, pp. 23-25.
- Gaetje, Frank C., Capt. "Routing Mission," *U.S. Army Aviation Digest*, vol. 15, no. 12, December 1969, pp. 10-12.
- Hqts., 2nd AIT Brigade. Program of Instruction for Advanced Individual Training Reconnaissance. Fort Knox, Kentucky.
- Hein, Clark D., Capt. "Exercise in Visual Purple," *U.S. Army Aviation Digest*, vol. 15, no. 12, December 1969, pp. 7-9.
- Hoskinson, Charles E., Capt. "You Too Can Adjust Artillery," *U.S. Army Aviation Digest*, vol. 15, no. 9, September 1969, pp. 2-6.
- James, Charles D., Maj. "Combat Intelligence for Aviation," *U.S. Army Aviation Digest*, vol. 15, no. 1, January 1970, pp. 15-18.
- Keehn, Richard, Capt. "Night Hunter Operations," *U.S. Army Aviation Digest*, vol. 15, no. 5, May 1969, pp. 16-20.

- Kuypers, Thomas O., Capt. "That Out-of-Place-Followed-by-Movement Look," *U.S. Army Aviation Digest*, vol. 12, nc. 12, December 1966, pp. 2-6.
- Nelson, Myron K., Jr., Lieut. "On the Way, Wait," *U.S. Army Aviation Digest*, vol. 12, no. 10, October 1966, p. 17.
- Powell, Herbert B., Gen. "Air Cavalry Troop," *Army Information Digest*, vol. 17, February 1962, pp. 67-74.
- Putman, Carl M., LTC. "Proponency of Aerial Fighting Vehicles, *Armor*, vol. 79, no. 3, May-June 1970, pp. 7-10.
- Roesler, David E., Capt. "It Works, All We Must Do Is Sell It," *Armor*, vol. 78, no. 6, November-December 1969, pp. 18-30.
- Sands, Thomas A. "Maps," *U.S. Army Aviation Digest*, vol. 10, no. 6, June 1964, pp. 29-31.
- Scavo, Sam A., Maj. "Armed Helicopters in the Tank Battalion," *Armor*, vol. 78, no. 4, July-August 1969, pp. 3-6.
- Swanson, Jon E., Capt. "Aeroscouts in Action," *Infantry*, vol. 60, no. 5, September-October 1970, pp. 46-49.
- U.S. Army Armor School. *Instructor Pilot Method of Instruction, Annex H*, Fort Knox, Kentucky.
- U.S. Army Armor School. *Tentative Course Outline for Aeroscout Observer Qualification*, Fort Knox, Kentucky.
- U.S. Army Armor School. *Tentative Course Outline for Officer/Warrant Officer Air Cavalry Qualification, 61204/100G*, Fort Knox, Kentucky.
- Wittbecker, Richard A., Maj. "Small, Medium or Large," *U.S. Army Aviation Digest*, vol. 15, no. 12, pp. 30-32.

Appendix A

LIST OF COMBAT JOB REQUIREMENTS FOR THE AIR CAVALRY AEROSCOUT PILOT

- I. Reporting Information
- II. Briefing the Forward Air Controller (FAC) Aircraft
- III. Directing Tactical Air Command (TAC) Airstrikes
- IV. Bomb Damage Assessment (BDA) Report
- V. Air Cavalry Operations
- Vi. Aircraft Weapons Subsystem and Individual Weapons
- VII. Aerial Armament, Artillery, Ammunition, Grenades, and Demolitions
- VIII. Communications
- IX. Map Reading and Navigation Skills
- X. Aerial Adjustment of Indirect Fire
- XI. Visual Detection and Recognition Skills
- XII. First Aid
- XIII. Pilot Ratings of Minimum Flight Requirements for the
Aeroscout Observer
Items Added by the Aeroscout Pilots

I. REPORTING INFORMATION

An aeroscout pilot's primary responsibility is to provide reconnaissance—the seeking out of any information which is essential to survival in combat. The list of items which could be reported is nearly endless. In order to standardize and formalize the information handling process, the military uses a reporting procedure called a "spot report." Presented in this section are four examples of spot reports representing the most frequent types of spot reports given, and the specific items of information to be reported in each. An attempt was made to list and rate the importance of possible indicators which contribute to the determination and verification of the information being processed.

A. Spot Report For Trails and Roads.

1. The aeroscout pilot must be able to give spot reports for trails and roads. (4.7)
2. Reports the correct map-grid coordinates of trails and roads. (4.0)
3. Identifies the direction personnel or equipment are moving on trails or roads by using the following indicators:
 - a. Footprints (4.8)
 - b. Broken foliage, grass, or limbs (4.7)
 - c. Vehicle markings and impressions (4.7)
 - d. Drag or pulled marks (4.4)
 - e. Animal footprints (3.9)
4. Reports the direction of the trail or road by using the following indicators:
 - a. Radio magnetic indicator (4.6)
 - b. Magnetic compass (4.4)
 - c. Topographical maps and aerial photographs (3.7)
 - d. Must be able to report general direction of the trail (point from, where to) (4.6)
5. Reports the number of personnel, vehicles, or equipment using the trail or road, and how recently, by using the following indicators:
 - a. Number of personnel
 - (1) Footprints (4.7)
 - (2) Width of the trail (4.4)
 - (3) Hardness of the trail surface (4.3)
 - (4) Amount of brush broken down along the trail (4.5)
 - b. Indicators of recent usage
 - (1) Clearness of impressions (4.6)
 - (2) Muddy pools of water (4.3)
 - (3) Water marks above or below the foliage (3.8)
 - (4) Color of trampled foliage on the trail (4.6)
 - (5) Dew on vegetation (3.9)
 - (6) Mud splashes on vegetation and objects (3.8)
 - (7) Appearance of leaves on the trail or road (dry on top, wet underneath) (4.1)
6. Reports width of the trail or road by using the following indicators:
 - a. Comparing size of the trail to the objects around it. (4.5)
 - b. Types of vehicles, equipment, or objects using the trail or road (4.5)
 - c. Using a map scale on a topographical map (2.8)

7. Reports how often the trail or road is being used by using the following indicators:
 - a. Comparing old and new footprints or impressions (4.8)
 - b. Location of night camps along the trail or road (4.4)
 - c. Objects which have been cleared away from the trail (4.4)
 - d. Condition of vegetation on or adjacent to the trail or road (4.5)
 - e. Type of traffic using the trail or road (4.5)
 - f. Type of load vehicles are carrying and the estimated weight of the loads (4.0)
 - g. Location of assembly areas (4.3)
 - h. Estimated rate of movement over the trail or road (3.9)
 - i. Detection of route markers (4.1)
 8. Reports and classifies bridges along the trail or road ensuring that the following information is reported:
 - a. Type of bridge (4.7)
 - b. Type of material of the bridge (4.9)
 - c. Weight capacity (4.1)
 - d. Length and width (4.4)
 - e. Must be able to draw a sketch of the bridge (3.6)
 9. Identifies graves along the trail or road, and must be able to report:
 - a. Number of graves (4.4)
 - b. Whether graves are old or new by the condition of the ground and surrounding area (4.6)
 - c. Whether officer or enlisted grave sites (2.3)
- B. Spot Report for Bunkers and Fighting Positions**
1. The aeroscout pilot must be able to give spot reports for bunkers and fighting positions. (4.9)
 2. Reports the number of bunkers and fighting positions. (4.9)
 - a. Number of actual count (4.4)
 - b. Number by estimating (4.2)
 3. Reports the size of bunkers and fighting positions by:
 - a. Estimating length and width (5.0)
 - b. Estimating the depth (3.8)
 4. Identifies and reports the types of different bunkers and fighting positions. (4.8)
 - a. If permanent or temporary construction (4.6)
 - b. If overhead cover and amount (4.4)
 - c. If walls are supported (4.1)
 - d. If used for living or cache type (4.8)
 - e. Type of construction material used (4.8)
 - f. Types of material used to camouflage the position (4.6)
 5. Reports the size of the area positions occupy and the way in which the positions are situated within that area. (5.0)
 - a. Length and width in meters (4.6)
 - b. Positioning of bunkers and fighting positions; e.g., circle, square, no set pattern, etc. (4.9)
 - c. Uses a topographical map and map scale to determine size of the area (3.0)
 - d. Draws a sketch of the area with emplacements (3.7)

6. Determines and reports usage of the emplacements by using the following indicators:
 - a. Footprints and impressions (4.9)
 - b. Campfire locations and conditions (4.3)
(NOTE: The conditions of campfires give an indication of the length of time occupied, as well as presence of the enemy)
 - c. Condition of entrances and exits to the emplacements; e.g., signs of personnel crawling in and out (5.0)
 - d. Activity on trails to and from the area (5.0)
 - e. Smells of food, fire, and incense (4.3)
 - f. Indications of repairs or changes of emplacements (4.6)
 - g. Signs of equipment or supplies (4.9)
 7. Estimates type and size of the unit that has or is using the emplacements. (4.3)
 8. Reports the presence of supplies and equipment in the area. (4.9)
 - a. Kinds of weapons (4.9)
 - b. Number of weapons (4.9)
 - c. Ammunition and kind (4.6)
 - d. Food (4.4)
 - e. Clothing (4.7)
 - f. Cooking utensils, tools, etc. (4.5)
 - g. Discarded ration containers (5.0)
 9. Reports trails around the location of emplacements. (5.0)
 - a. Number of trails leading to and from the area (5.0)
 - b. Direction of each trail (4.6)
 - c. Location of trails in relation to the area. (4.6)
 - d. Condition of the trails (4.9)
 10. Reports how recently the emplacements were constructed by using the following indicators:
 - a. Condition of the positions; e.g., fresh earth, signs of digging, etc. (4.9)
 - b. Condition of the trails, old or new (4.9)
 - c. Condition of construction material (4.7)
 - d. Condition of camouflage; e.g., green, dry (4.6)
 - e. Type of construction (4.4)
- C. Spot Report for Man-Made Building Structures.
1. The aeroscout pilot must be able to give a spot report for man-made building structures. (4.8)
 2. Reports the number of structures
 - a. By actual count (4.3)
 - b. By estimating (4.1)
 3. Reports the size of structures by estimating length, width, and height in meters. (4.7)
 4. Reports the type of structures (5.0)
 - a. Whether permanent or temporary (4.9)
 - b. Condition of structures (4.6)
 - c. Use being made of the structures (4.5)
 - d. Repairs or changes (4.6)
 5. Reports the type of construction material of the structures. (4.9)

6. Reports the area the structures cover and how the structures are situated within that area. (4.7)
 - a. Estimates length and width of the area in meters (4.4)
 - b. Reports positioning of the structures within the area (4.4)
 - c. Uses a topographical map and map scale to determine the size of the area (2.9)
 7. Determines and reports signs of recent usage by using the following indicators:
 - a. Footprints and impressions (4.8)
 - b. Campfire locations and condition (4.3)
 - c. Condition of entrances and exits (4.5)
 - d. Activity on the trails leading to and from the area (4.9)
 - e. Smells of food, fire, and incense (4.1)
 - f. Condition of repairs made to the structures (4.9)
 - g. Discarded ration containers (5.0)
 8. Reports the presence of supplies or equipment in the area.
 - a. Types of weapons (4.9)
 - b. Number of weapons (4.8)
 - c. Ammunition and kind (4.6)
 - d. Food (4.4)
 - e. Clothing (4.5)
 - f. Cooking utensils, tools, etc. (4.4)
 9. Reports trails around the structure area. (5.0)
 - a. Number of trails leading to and from the area (4.9)
 - b. Direction of each trail (4.6)
 - c. Location of trails in relation to the area (4.9)
 - d. Condition of the trails (4.9)
 10. Reports how recently the structures were built by using the following indicators:
 - a. Condition of the structures (4.6)
 - b. New or old trails (4.6)
 - c. Type of construction (4.4)
 - d. Condition of camouflage (4.8)
- D. Spot Report for Anti-Aircraft Weapons.
1. The aeroscout pilot must be able to give a spot report for anti-aircraft weapons. (4.6)
 2. Reports the number of weapons:
 - a. By actual count (4.4)
 - b. By estimating (4.2)
 3. Estimates number of personnel or weapons by knowing how many personnel are required to serve the weapons (4.0)
 4. Estimates the number of personnel or weapons by the amount of fire being received. (4.5)
 5. Recognizes and reports the types of tactical emplacements for anti-aircraft weapons. (4.6)
 6. Reports the area of coverage of the weapons. (4.5)
 - a. Altitude covered by the weapons by using the aircraft altimeter readings as a reference (3.8)
 - b. Length and width in meters of the area the weapon(s) will cover (4.6)

- 7. Reports the amount of fire being received. (4.6)
 - a. At what intervals fire is being taken (4.3)
 - b. Approximate number of rounds fired at each interval (3.9)
 - c. Rate of fire to indicate the type of weapon firing (4.4)

II. BRIEFING THE FORWARD AIR CONTROLLER (FAC) AIRCRAFT

In many instances Air Cavalry scout elements were attached in support of Air Force tactical aircraft to seek out enemy targets. The scouts, acting as the "eyes," would then direct and assist the Air Force elements in bringing aerial fire upon the enemy. In performance of Air Cavalry missions, the aeroscout pilot requested aerial fire support from Air Force elements. In those situations the scouts would assist and even sometimes direct tactical Air Force elements in conducting airstrikes.

The following information provides an indication as to what information should be included in the briefing of the Forward Air Controller (FAC). Also provided is a rating of the importance of the items to be reported.

1. The aeroscout pilot must be able to brief and assist the FAC in conducting airstrikes against ground targets. (4.4)
 - a. Reports the number of targets: (4.2)
 - (1) By actual count (4.2)
 - (2) By estimating (4.3)
 - b. Identifies the target(s). (4.6)
 - (1) Disposition of enemy troops (4.6)
 - (2) Bunkers and fighting positions (4.7)
 - (3) Structures and type (4.7)
 - (4) Anti-aircraft weapons (4.7)
 - (5) Caches (4.3)
 - c. Reports area to be covered (4.5)
Gives length and width in meters (4.2)
 - d. Reports the type of fire expected to receive. (4.7)
 - (1) Number of weapons (4.6)
 - (2) Location of weapons (4.5)
 - (3) Type of weapons (4.5)
 - e. Recommends the types of aerial bombs to be employed. (3.4)
2. The aeroscout pilot must know what types of aerial bombs are most effectively used against specific types of targets. (NOTE: The aeroscout pilots surveyed indicated they would recommend the following types of bombs to be used against these specified targets or situations.) (4.0)
 - a. Point detonating bombs against structures and vehicles.
 - b. Delayed fuse bombs against bunkers, caves, and tunnels, armor vehicles, and penetration of trees or heavy foliage.
 - c. Variable Time (VT) fuse against light vehicles or enemy troops in the open.
 - d. Napalm against enemy troops in heavy foliage and bunkers, wooden structures, foxholes, destruction of food crops.
 - e. Cluster Bomb Unit (CBU) against enemy troops in the open or heavy foliage and light vehicles, troops in foxholes, or troops under light foliage.
 - f. Delayed fuse bombs mixed with VT for penetration of trees and heavy foliage.
 - g. Napalm mixed with delayed fuse bombs for troops in bunkers.

III. DIRECTING TACTICAL AIR COMMAND (TAC) AIRSTRIKES

In some instances the aeroscout pilot had to direct tactical airstrikes due to the absence of an FAC aircraft or when the FAC had to return to base for refueling or due to aircraft malfunction. The briefing to the tactical air elements would be the same as for the FAC as specified in Section II. In this section, the job requirements are specified along with a rating as to the importance of each of the job elements necessary to accomplishing the job requirements for directing TAC airstrikes.

1. The aeroscout pilot must be able to direct TAC airstrikes. (4.0)
 - a. Marks the location of friendly ground elements. (4.2)
 - (1) The aeroscout pilot marks the location of friendly ground elements for TAC. (4.5)
(NOTE: The aeroscout pilot would also mark for FAC.)
 - (2) The aeroscout pilot contacts ground units and has them mark their own locations. (4.5)
 - b. Marks target or target area for initial airstrikes (4.9)
Uses white phosphorous or smoke grenades. (4.4)
 - c. Senses and adjusts the aerial fire support. (4.8)
 - (1) Knows and applies the correct procedures for sensing and adjusting airstrikes. (4.7)
 - (2) Knows the correct procedures for informing the tactical aircraft to adjust their airstrikes. (4.8)
 - (3) Re-marks target or target area if required. (4.8)
2. The aeroscout pilot must be able to give a bomb damage assessment (BDA) report to the tactical air units. (4.7)
(NOTE: Provides FAC with a BDA report when using an FAC aircraft.)
 - a. Reports number of targets destroyed (4.7)
 - b. Items destroyed (4.5)
 - c. Size of items destroyed (4.5)
 - d. Whether bombs were surface, sub-surface, or VT (3.5)
 - e. Number of personnel killed (4.5)
 - f. Targets remaining (4.5)

IV. BOMB DAMAGE ASSESSMENT (BDA) REPORT

The aeroscout pilot is required, at times, to perform reconnaissance of an area which has recently sustained an airstrike or artillery barrage. In this section a reporting format and a rating as to the importance of each element of the bomb damage assessment (BDA) report is provided.

1. The aeroscout pilot must be able to give a BDA report. (4.9)
 - a. Reports number destroyed (4.5)
 - (1) By actual count (4.5)
 - (2) By estimating (3.9)
 - b. Items destroyed (4.6)
 - c. Size of area or items destroyed, if bunkers or structures (4.5)
 - d. Width, height, and length in meters for structures or bunkers (4.4)
 - e. Items not destroyed (5.0)
2. The aeroscout pilot must be able to identify the types of bombs or artillery used. (2.9)
 - a. Reports if surface or sub-surface bursts by using the following indicators:
 - (1) Size or depth of hole in the ground (3.5)
 - (2) Size of area destroyed (3.5)
 - (3) Amount of items on the ground surface destroyed (3.6)
 - b. Reports if air burst by using the following indicators:
 - (1) Amount of trees or foliage destroyed (3.6)
 - (2) Amount of surface area covered (3.5)
3. The aeroscout pilot must be able to evaluate and report if additional fire support is required. (5.0)

V. AIR CAVALRY OPERATIONS

1. The aeroscout pilot must be able to identify the organizational elements of:
 - a. Armored, Infantry, Mechanized Infantry Brigade (2.9)
 - b. Armored Cavalry Regiment (2.9)
 - c. Armored Cavalry Squadron (3.1)
 - d. Air Cavalry Squadron (3.6)
 - e. Air Cavalry Troop (4.0)
 - f. Air Cavalry Scout Section (4.3)
2. The aeroscout pilot must understand the operational characteristics of:
 - a. Armored Cavalry Regiment (3.3)
 - b. Armored Cavalry Squadron (3.4)
 - c. Armored Cavalry Troop (3.7)
 - d. Air Cavalry Squadron (3.9)
 - e. Air Cavalry Troop (4.4)
 - f. Air Cavalry Scout Section (4.6)
3. The aeroscout pilot must know the principles of conducting reconnaissance missions as performed by the:
 - a. Armored Cavalry Regiment (3.2)
 - b. Armored Cavalry Squadron (3.3)
 - c. Armored Cavalry Troop (3.5)
 - d. Air Cavalry Squadron (3.9)
 - e. Air Cavalry Troop (4.2)
 - f. Air Cavalry Scout Section (4.4)
4. The aeroscout pilot must know the principles of conducting security missions as performed by the:
 - a. Armored Cavalry Regiment (3.1)
 - b. Armored Cavalry Squadron (3.1)
 - c. Armored Cavalry Troop (3.4)
 - d. Air Cavalry Squadron (3.9)
 - e. Air Cavalry Troop (4.3)
 - f. Air Cavalry Scout Section (4.4)
5. The aeroscout pilot must know the principles of conducting offensive operations as performed by the:
 - a. Armored Cavalry Regiment (3.1)
 - b. Armored Cavalry Squadron (3.3)
 - c. Armored Cavalry Troop (3.4)
 - d. Air Cavalry Squadron (4.0)
 - e. Air Cavalry Scout Section (4.5)
6. The aeroscout pilot must know the principles of conducting defensive operations as performed by the:
 - a. Armored Cavalry Regiment (3.3)
 - b. Armored Cavalry Squadron (3.4)
 - c. Armored Cavalry Troop (3.5)
 - d. Air Cavalry Squadron (4.0)
 - e. Air Cavalry Troop (4.4)
 - f. Air Cavalry Scout Section (4.5)

7. The aeroscout pilot must know the principles of conducting delaying actions as performed by the:
 - a. Armored Cavalry Regiment (3.2)
 - b. Armored Cavalry Squadron (3.3)
 - c. Armored Cavalry Troop (3.4)
 - d. Air Cavalry Squadron (3.9)
 - e. Air Cavalry Troop (4.3)
 - f. Air Cavalry Scout Section (4.8)
8. The aeroscout pilot must know the principles of conducting stability operations as performed by the:
 - a. Armored Cavalry Regiment (3.2)
 - b. Armored Cavalry Squadron (3.2)
 - c. Armored Cavalry Troop (3.5)
 - d. Air Cavalry Squadron (4.0)
 - e. Air Cavalry Troop (4.0)
 - f. Air Cavalry Scout Section (4.6)
9. The aeroscout pilot must know the methods and techniques of conducting night operations as performed by the:
 - a. Armored Cavalry Regiment (3.0)
 - b. Armored Cavalry Squadron (3.1)
 - c. Armored Cavalry Troop (2.9)
 - d. Air Cavalry Squadron (3.7)
 - e. Air Cavalry Troop (3.8)
 - f. Air Cavalry Scout Section (3.9)
10. The aeroscout pilot must know the principles of conducting aeroscout missions as performed by the:
 - a. Air Cavalry Squadron (4.2)
 - b. Air Cavalry Troop (4.6)
 - c. Air Cavalry Scout Section (4.8)
11. The aeroscout pilot must know the principles of conducting an economy of force mission as performed by the:
 - a. Air Cavalry Squadron (3.8)
 - b. Air Cavalry Troop (3.9)
 - c. Air Cavalry Scout Section (4.3)
12. The aeroscout pilot must know the methods and techniques of conducting air marches as performed by the:
 - a. Air Cavalry Squadron (3.5)
 - b. Air Cavalry Troop (3.9)
 - c. Air Cavalry Scout Section (4.1)
- The aeroscout pilot must:
 13. Be able to perform chemical agent detection and radiological monitoring and survey operations. (3.2)
 14. Know the methods and considerations in selection and organization of an assembly area for the Air Cavalry Troop. (4.1)
 15. Know the methods and techniques of low-level scouting. (5.0)
 16. Know the methods and techniques employed while performing night observation. (3.9)
 17. Understand the principles involved in conducting combined arms tactical operations. (4.4)
 18. Know the methods and techniques of working with ground elements. (4.8)
 19. Be able to identify potential enemy ambush sites. (4.2)

20. Know what information is required in performing a river reconnaissance and be able to perform this mission. (4.7)
21. Be able to classify bridges. (4.4)
22. Be able to classify roads and give a proper road report. (4.4)
23. Be able to advise and direct ground elements in performance of their missions. (4.7)
24. Be able to direct air mobile combat assaults. (4.3)
25. Know the methods and techniques of inserting ranger elements and be able to perform insertion missions. (4.5)
26. Be able to perform combat extraction of ground elements. (4.1)
27. Be able to request and direct medevac missions. (4.6)
28. Know how and when to use reconnaissance by fire. (4.9)
29. Be able to identify the various organizational components of the Air Cavalry Attack Helicopter Squadron. (3.4)
30. Know the methods of employment used by the Air Cavalry Attack Helicopter Squadron. (3.7)
31. Know the methods, procedures, and coordination requirements when working with attack helicopter elements. (4.5)
32. Know the procedures and be able to direct attack helicopter elements. (4.8)
33. Know and be able to identify the organizational components of supporting artillery elements. (3.1)
34. Know the methods and techniques of integrating Air Cavalry with tactical air, supporting artillery, and ground elements in conducting combat operations. (4.5)
35. Know the capabilities of area coverage which an Air Cavalry unit can provide in a combined arms operation. (4.0)
36. Know how to perform tactical field refueling procedures for the scout aircraft. (4.9)
37. Know unit refueling procedures, methods, and organizational set-up for refueling operations during field operations. (4.7)
38. Know the methods and procedures for coordination of combat operations with allied forces. (4.2)
39. Know the information requirements concerning combat intelligence dealing with:
 - a. Organizational structure of enemy combat and combat support units (3.8)
 - b. Terrain analysis (4.3)
 - c. Weapons characteristics (4.4)
 - d. Unusual items of equipment (4.4)
 - e. Role of aeroscout pilot in the intelligence gathering system (4.4)
40. Know the principles of conducting tactical operations and employment of Armor, Infantry, and Mechanized Infantry units:
 - a. Brigade level (3.1)
 - b. Battalion level (3.1)
 - c. Company level (3.3)
41. Know and apply the principles and techniques for low-level scouting. (5.0)
42. Know the operational characteristics and composition of enemy units. (4.0)
43. Know the procedures for collecting and disseminating intelligence material. (3.3)
44. Be able to operate and employ night vision equipment from scout helicopters. (3.3)
45. Be able to operate and employ electronic surveillance equipment from a scout helicopter. (3.7)

VI. AIRCRAFT WEAPONS SUBSYSTEM AND INDIVIDUAL WEAPONS

A. Aircraft Weapons Subsystem.

The aeroscout pilot must:

1. Know the safety procedures concerning the aircraft weapons subsystem. (4.9)
2. Know the operational characteristics of the weapons subsystem. (4.9)
3. Be able to arm, place in the safe position, and clear the weapons subsystem. (4.9)
4. Be able to identify the weapons subsystem components. (4.1)
5. Be able to correct weapons subsystem malfunctions. (4.4)
6. Be able to boresight weapons subsystem. (3.9)
7. Be able to assemble and disassemble the weapons subsystem. (4.0)
8. Be able to perform first echelon maintenance on the weapons subsystem. (3.6)
9. Be able to perform second echelon maintenance on the weapons subsystem. (3.2)
10. Be able to perform preflight checks on the weapons subsystem. (4.9)
11. Be able to perform operational (dry fire) checks on the weapons subsystem. (4.4)
12. Be able to place effective fire on targets during low-level flight using the weapons subsystem. (4.3)
13. Know the area dispersion and ballistics characteristics of the weapons subsystem. (4.4)

B. Individual Weapons.

The aeroscout pilot must:

1. Be able to disassemble, assemble, troubleshoot, maintain, and fire the M-79 grenade launcher. (4.2)
2. Know the weapon characteristics of the M-79 grenade launcher. (4.4)
3. Be able to disassemble, assemble, troubleshoot, maintain, and fire the M-60 machine gun. (4.4)
4. Know the weapon characteristics of the M-60 machine gun. (4.6)

VII. AERIAL ARMAMENT, ARTILLERY, AMMUNITION, GRENADES, AND DEMOLITIONS

The aeroscout pilot must:

1. Be able to identify the types of aerial armament available for fire support. (4.6)
2. Know the characteristics of each type of aerial armament. (4.4)
3. Know what types of aerial armament are best to use against specific targets and target configurations. (4.5)
4. Be able to identify and use all types of grenades and demolitions used by aeroscout pilots. (4.9)
5. Know and use the rules of safety and handling of grenades and demolitions in the aircraft. (5.0)
6. Be able to identify the types of artillery rounds available for fire support. (4.1)
7. Know the characteristics of each type of artillery round available for fire support. (3.7)
8. Be able to request the proper artillery round for use against specific targets and target configurations. (3.9)
9. Know and apply the safety parameters and procedures which could affect the safety of the aircraft when operating with or near:
 - a. Aerial armament systems including tactical air fire (4.6)
 - b. Artillery and naval gunfire (4.2)
 - c. Demolitions (4.5)
 - d. Grenades (4.9)
10. Know and apply the safety parameters and procedures for ground elements when requesting supporting fire or when using grenades or demolitions in support of ground operations. (5.0)
11. Know and apply the safety parameters and procedures for air elements when aerial armament, artillery and naval gunfire, demolitions, or grenades are being utilized in the air elements area of operation. (4.4)
12. Know the methods and techniques used for delivery of aerial armament. (4.4)
13. Be able to rig CS gas canisters. (4.6)
14. Know the characteristics and safety handling of CS canisters. (4.5)

VIII. COMMUNICATIONS

1. The aeroscout pilot must know the communication capabilities of the:
 - a. Armored Cavalry Regiment (2.8)
 - b. Armored Cavalry Squadron (2.8)
 - c. Air Cavalry Squadron (3.6)
 - d. Air Cavalry Troop (4.5)
 - e. FAC and TAC (5.0)
 - f. Tactical Operations Center (5.0)
 - g. Ranger Stay Behind Patrols (5.0)

(NOTE: Some pilots specified that the radio capabilities of the ground units that aeroscout pilots normally support be included in the above list. Level of command was company and platoon.)

2. The aeroscout pilot must be able to identify the types of radios organic to:
 - a. Armored Cavalry Regiment (2.9)
 - b. Armored Cavalry Squadron (2.9)
 - c. Air Cavalry Squadron (3.9)
 - d. Air Cavalry Troop (4.5)
 - e. FAC and TAC (5.0)
 - f. Tactical Operations Center (5.0)
 - g. Ranger Stay Behind Patrols (5.0)
 - h. Ground elements normally supported by aeroscout pilots; company and platoon level (5.0)

The aeroscout pilot must:

3. Know the types of radio nets utilized in Armor Cavalry operations. (3.4)
4. Know what ground radio sets with which Air Cavalry radios will net. (4.1)
5. Be able to identify and use crypto devices. (2.9)
6. Know what information is contained in an SOI and SOI extracts and how to use them. (4.7)
7. Be able to use correct radiotelephone procedures. (4.5)
8. Be able to operate and maintain the survival radio. (4.9)

IX. MAP READING AND NAVIGATION SKILLS

The aeroscout pilot must:

1. Be able to perform terrain interpretation from maps and map supplements. (4.3)
2. Be able to identify terrain and objects from aerial photographs. (3.9)
3. Be able to orient air photographs to topographical maps. (4.0)
4. Be able to use pictomaps. (3.9)
5. Be able to use medium-scale and large-scale maps. (4.4)
6. Be able to determine aircraft location and direction of movement using maps or map supplements. (3.9)
7. Be able to select and use near and far checkpoints in air navigation. (4.5)
8. Be able to read grid coordinates using six digits. (4.2)
9. Be able to read grid coordinates using eight digits. (3.7)
10. Know the methods and techniques of making a map reconnaissance before a mission. (4.2)
11. Be able to draw map overlays. (5.0)

X. AERIAL ADJUSTMENT OF INDIRECT FIRE

The aeroscout pilot must:

1. Be able to request and adjust fire support using the correct forward observer procedures: (4.0)
 - a. Grid method of target location (4.0)
 - b. Gun target (GT) link for adjustment of artillery (4.0)
2. Be able to perform the preflight preparations and coordinations required for performance of an indirect fire support mission. (3.7)
3. Be able to request and adjust naval gunfire. (3.6)
4. Be able to identify and use the various types of artillery fire that can be provided. (3.6)
5. Be able to request the correct ammunition for maximum target destruction. (3.6)
6. Know the ballistic characteristics of each type of artillery round. (3.3)
7. Be able to sense and adjust direct fire ground weapons. (3.5)
8. Be able to sense and adjust aerial rocket artillery. (4.4)
9. Be able to sense and adjust tactical air direct fire. (4.1)
10. Know the procedures for fire planning, selection, and coordination of fire support from multiple delivery systems. (3.2)

XI. VISUAL DETECTION AND RECOGNITION SKILLS

The aeroscout pilot must:

1. Know the methods and techniques of searching for targets during low-level flight. (5.0)
2. Know what terrain factors and target characteristics contribute to, or detract from, target acquisition. (4.6)
3. Know the effects of weather on aerial surveillance. (4.5)
4. Be able to identify the following categories of enemy weapons, vehicles, and aircraft:
 - a. Anti-aircraft weapons (5.0)
 - b. Tactical non-armored wheeled vehicles (4.4)
 - c. Transportation and supply wheeled vehicles (4.2)
 - d. Light armored vehicles, wheeled or track (4.5)
 - e. Heavy armored and self-propelled artillery weapons (4.5)
 - f. Artillery and missile emplacements (4.8)
 - g. Mortar type weapons (4.9)
 - h. Recoiless weapons (4.9)
 - i. Small arms (4.7)
 - j. Low performance aircraft (4.0)
 - k. High performance aircraft (4.2)
5. Be able to identify military uniforms, including identification of type of military unit, rank of individuals, and type of uniform. (3.9)
6. Be able to identify the following types of man-made installations:
 - a. Airstrips, including hasty types (4.5)
 - b. Bunkers (5.0)
 - c. Fighting positions (5.0)
 - d. Building structures (4.6)
 - e. Bridges (4.2)
 - f. Types of roads and prepared trails (4.9)
 - g. Trench lines (4.8)
 - h. Minefields (4.7)
 - i. Gun emplacements (5.0)
 - j. Supply installations (4.4)
 - k. Observation posts (4.6)
 - l. Obstacles and barriers (4.7)
 - m. Defoliated and bombed-out areas (4.7)
7. Be able to identify the following natural terrain factors:
 - a. Caves (4.8)
 - b. Streams and waterways (4.9)
 - c. Natural trails (4.9)
 - d. Types of vegetation and cover (4.1)
 - e. Types of terrain features (5.0)

XII. FIRST AID

The aeroscout pilot must be able to:

1. Treat puncture wounds. (4.6)
2. Treat burns. (4.7)
3. Treat fractures. (4.5)
4. Perform a tracheotomy. (3.8)
5. Perform artificial respiration:
 - a. Closed chest heart massage (4.6)
 - b. Mouth-to-mouth resuscitation (4.9)
6. Perform treatment for shock. (4.9)
7. Perform all types of man-carries. (4.5)
8. Identify and use all items in the aircraft First Aid Kit. (4.7)
9. Give patient care for casualties who cannot be evacuated to a medical treatment facility. (4.5)
10. Apply the four life-saving steps. (5.0)
11. Treat and care for casualties with major wounds. (4.6)

XIII. PILOT RATINGS OF MINIMUM FLIGHT REQUIREMENTS FOR THE AEROSCOUT OBSERVER

There has been much discussion as to whether or not the aeroscout observer should have a minimum amount of flight training so that he could possibly take over control of the aircraft in an emergency. Almost every aeroscout observer interviewed during the course of this study had flight skills. From the previous interviews it appears that if the observer learns to fly OJT in a combat situation, then some means should be taken to identify the minimum skill requirements for inclusion into an aeroscout observer training program.

In trying to identify the minimum skills required for flight performance, one condition was specified: The aircraft must be moving at an airspeed of 20 knots or better. It was felt that if the pilot was hit while the aircraft was moving at less than 20 knots the observer would not be able to react quickly enough to regain control.

1. The aeroscout observer must be able to fly the aircraft in an emergency when the aeroscout pilot is unable to perform his duties, due to injuries or other incapacitating factors. (4.7)
 - a. Must be able to take control of the aircraft moving at an airspeed of 20 knots or more. (4.6)
 - (1) Must be able to maintain a standard rate of climb of 500 feet per minute, with an allowable error of 100 FPM. (3.9)
 - (2) Must be able to apply the necessary power to acquire a standard rate of climb. (3.7)
 - b. Must be able to maintain a heading within 10-15 degrees. (4.1)
 - (1) Must be able to maintain a heading by using the radio magnetic indicator. (3.7)
 - (2) Must be able to maintain a heading by using the magnetic compass. (4.0)
 - c. Must be able to maintain the aircraft in a straight and level altitude. (4.5)
 - (1) Must be able to maintain a specified altitude within 100 feet. (3.8)
 - (2) Must be able to apply the necessary power to maintain altitude. (4.5)
 - (3) Must be able to maintain an airspeed of 80 knots, plus or minus 5 knots. (3.6)
 - d. Must be able to initiate turns while maintaining airspeed and altitude. (4.1)
 - (1) Must be able to perform a two-minute turn. (2.8)
 - (2) Must be able to perform a four-minute turn. (2.7)
 - (3) Must be able to maintain an altitude within 100 feet while performing a turn. (3.3)
 - (4) Must be able to apply the necessary power to maintain altitude during a turn. (4.4)
 - (5) Must be able to maintain an airspeed of 80 knots, plus or minus 10 knots while performing a turn. (3.2)
 - e. Must be able to perform a running landing. (4.2)
 - (1) Must be able to make a normal approach and terminate it at a designated area. (3.6)
 - (2) Must be able to keep slide angle as shallow as possible. (4.5)

- (3) Must be able to maintain an airspeed not to exceed 30 knots and not less than 20 knots. (4.4)
- (4) Must be able to maintain the aircraft in a straight altitude, using the pedal controls. (4.5)
- (5) Must be able to use as little ground run as possible. (3.7)
- f. Must be able to perform low-level autorotations. (3.0)
 - (1) Must be able to maintain an airspeed within five knots. (3.2)
 - (2) Must be able to keep rotor RPM in the green. (4.0)
 - (3) Must know the procedures for, and be able to regain loss of rotor RPM. (4.1)
 - (4) Must know the procedures for, and be able to eliminate too much rotor RPM. (4.1)
 - (5) Must be able to perform deceleration. (4.1)
 - (a) Must know at what altitude to do so (3.9)
 - (b) Must know to what extent to do so (3.9)
 - (6) Must be able to cushion the aircraft. (4.2)
 - (a) Must know at what altitude to do so (4.1)
 - (b) Must know to what extent to do so (4.0)
- g. Must be able to shut down the aircraft power system after performing a landing
 - (1) Must know the procedures for system shut-down. (4.7)
 - (2) Must be able to neutralize the aircraft controls. (4.7)
- h. Must understand the meaning of, and be able to respond properly to, all red and green line indicators for all engine instruments. (3.9)

ITEMS ADDED BY THE AEROSCOUT PILOTS

All pilots interviewed were given a chance to include any item which they felt was not covered by the inventory list. The following is a list of the additional items they recommended for inclusion. No ratings were obtained on the items as all pilots were not given the opportunity to rate each one.

1. The aeroscout pilot must know low level flight methods and techniques for marking targets.
2. The aeroscout pilot must be able to disassemble, assemble, troubleshoot, maintain, and fire the CAR 15.
3. The aeroscout pilot must know the weapon characteristics of the CAR 15.

Appendix B

LIST OF COMBAT JOB REQUIREMENTS FOR THE AIR CAVALRY AEROSCOUT OBSERVER

- I. Reporting Information**
- II. Briefing the Forward Air Controller (FAC) Aircraft**
- III. Directing Tactical Air Command (TAC) Airstrikes**
- IV. Bomb Damage Assessment (BDA) Report**
- V. Air Cavalry Operations**
- VI. Aircraft Weapons Subsystem**
- VII. Aerial Armament, Artillery, Ammunition, Grenades,
and Demolitions**
- VIII. Communications**
- IX. Map Reading and Navigation Skills**
- X. Aerial Adjustment of Indirect Fire**
- XI. Visual Detection and Recognition Skills**
- XII. First Aid**
- XIII. Aeroscout Observer Ratings of Minimum Flight
Requirements**
- XIV. Aircraft Maintenance**
- XV. Aircraft Loading**
- XVI. Combat Intelligence**
- XVII. Emergency Procedures, Survival, Escape, and Evasion**
- XVIII. Individual Weapons**
- XIX. Aircraft Instruments and Components**
- XX. Marking of Targets**

I. REPORTING INFORMATION

An aeroscout observer's primary responsibility is to observe and report any information which is essential to the gathering of reconnaissance information and accomplishment of the mission. The list of items which could be reported is nearly endless. In order to standardize and formalize the information handling process, the military uses a reporting procedure called a "spot report."

In this section are four examples of spot reports representing the most frequent types of spot reports given and the specific items of information to be reported in each. An attempt was made to list and rate the importance of possible indicators which contribute to the determination and verification of the information being processed.

A. Spot Report for Trails and Roads

1. The aeroscout observer must be able to give spot reports for trails and roads. (5.0)
2. Reports the correct map grid coordinates of trails and roads. (3.8)
3. Identifies the direction personnel or equipment is moving on trails or roads by using the following indicators:
 - a. Footprints (4.7)
 - b. Broken foliage, grass, and limbs (4.7)
 - c. Vehicle markings and impressions (4.6)
 - d. Drag or pulled marks (4.1)
 - e. Animal footprints (3.8)
4. Reports direction of the trail or road by using:
 - a. Radio magnetic indicator (3.1)
 - b. Magnetic compass (3.7)
 - c. Topographical maps and aerial photographs (3.5)
 - d. Must be able to report general direction of the trail (point from, where to) (4.3)
5. Reports the number of personnel, vehicles, or equipment using the trail or road, including how recently it has been used, by using the following indicators:
 - a. Number of personnel
 - (1) Footprints (4.7)
 - (2) Width of the trail (4.3)
 - (3) Hardness of the trail surface (4.5)
 - (4) Amount of brush broken down along the trail (4.6)
 - b. Indicators of recent usage
 - (1) Clearness of impressions (4.5)
 - (2) Muddy pools of water (3.9)
 - (3) Water marks above or below the foliage (3.4)
 - (4) Color of trampled foliage on the trail (4.1)
 - (5) Dew on vegetation (3.3)
 - (6) Mud splashes on vegetation and objects (3.9)
 - (7) Appearance of leaves on the trail or road (dry on top, wet underneath) (3.9)
6. Reports width of the trail or road by using the following indicators:
 - a. Comparing the size of the trail to objects around it (3.9)
 - b. Types of vehicles, equipment, and objects using the trail or road (4.6)
 - c. Use of a map scale on a topographical map (3.1)

7. Reports how often the trail or road is being used by using the following indicators:
 - a. Comparing old and new footprints or impressions (4.3)
 - b. Location of night camps along the trail or road (4.7)
 - c. Objects which have been cleared away from the trail (4.4)
 - d. Condition of vegetation on or adjacent to the trail or road (4.3)
 - e. Type of traffic using the trail or road (4.1)
 - f. Type of load vehicles are carrying and the estimated weight of the loads (4.0)
 - g. Location of assembly areas (4.7)
 - h. Estimated rate of movement over the trail or road (4.7)
 - i. Detection of route markers (4.7)
 8. Reports and classifies bridges along the trail or road, ensuring that the following information is reported:
 - a. Type of bridge (4.5)
 - b. Type of material (4.7)
 - c. Weight capacity (4.0)
 - d. Length and width (4.2)
 - e. Must be able to draw a sketch of the bridge (3.5)
 9. Identifies graves along the trail or road, and must be able to report:
 - a. Number of graves (4.3)
 - b. If graves are old or new by condition of the ground and surrounding area (4.5)
 - c. If officer or enlisted grave sites (2.9)
- B. Spot Report for Bunkers and Fighting Positions**
1. The aeroscout observer must be able to give spot reports for bunkers and fighting positions. (5.0)
 2. Reports the number of bunkers and fighting positions. (4.9)
 - a. Reports the number by actual count (4.1)
 - b. Reports the number by estimating (4.8)
 3. Reports size of the bunkers and fighting positions by:
 - a. Estimating length and width (4.8)
 - b. Estimating the depth (4.0)
 4. Identifies and reports the types of different bunkers and fighting positions. (4.7)
 - a. Permanent or temporary type of construction (4.9)
 - b. Overhead cover and amount (4.8)
 - c. If walls are supported (4.0)
 - d. If used for living or cache type (4.4)
 - e. Type of construction material used (4.1)
 - f. Type of material used to camouflage the position (4.1)
 5. Reports the size of the area positions occupy and the way in which the positions are situated within that area. (4.2)
 - a. Length and width of area in meters (4.4)
 - b. Positioning of bunkers and fighting positions; e.g., circle, square, no set pattern, etc. (4.4)
 - c. Use of a topographical map and map scale to determine the size of the area (3.4)
 - d. Draws a sketch of the area with emplacements (3.1)

6. Determines and reports usage of the emplacements by using the following indicators:
 - a. Footprints and impressions (4.9)
 - b. Campfire locations and condition (4.7)
- (NOTE: Condition of the campfires gives an indication of the length of time occupied, as well as presence of the enemy.)
- c. Condition of entrances and exits to the emplacements; e.g., signs of personnel crawling in and out (4.8)
- d. Activity on trails to and from the area (4.8)
- e. Smells of food, fire, and incense (4.3)
- f. Indications of repairs or changes to the emplacements (4.6)
- g. Signs of equipment or supplies (5.0)
7. Estimates type and size of the unit that has or is using the emplacements. (4.9)
8. Reports the presence of supplies and equipment in the area. (4.8)
 - a. Kind of weapons (4.8)
 - b. Number of weapons (4.4)
 - c. Ammunition and kind (4.7)
 - d. Food (4.3)
 - e. Clothing (3.8)
 - f. Cooking utensils, tools, etc. (3.9)
 - g. Discarded ration containers (5.1)
9. Reports the trails around location of emplacements. (4.9)
 - a. Number of trails leading to and from the area (4.8)
 - b. Direction of each trail (4.6)
 - c. Location of trails in relation to the area (4.4)
 - d. Condition of the trails (4.8)
10. Reports how recently the emplacements were constructed, using the following indicators:
 - a. Condition of the positions; e.g., fresh earth, signs of digging, etc. (4.7)
 - b. Condition of old or new trails (4.8)
 - c. Condition of construction material (4.5)
 - d. Condition of camouflage; e.g., green, dry (4.6)
 - e. Type of construction (4.1)

C. Spot Report for Man-Made Building Structures

1. The aeroscout observer must be able to give a spot report for man-made building structures. (4.8)
2. Reports the number of structures
 - a. by actual count (4.0)
 - b. by estimating (4.7)
3. Reports size of the structures by estimating length, width, and height in meters. (4.5)
4. Reports the type of structures. (4.5)
 - a. Permanent or temporary (4.4)
 - b. Condition of the structures (4.2)
 - c. Use of the structures (4.2)
 - d. If repairs or changes have been made (3.9)
5. Reports type of construction material of the structures. (4.4)

6. Reports the area the structures cover and how the structures are situated within that area. (4.5)
 - a. Estimates length and width of the area in meters (4.0)
 - b. Reports positioning of the structures within the area. (4.1)
 - c. Uses topographical map and map scale to determine the size of the area (3.1)
 7. Determines and reports signs of recent usage by using the following indicators:
 - a. Footprints and impressions (4.4)
 - b. Campfire locations and condition (3.8)
 - c. Condition of entrances and exits. (3.9)
 - d. Activity on trails leading to and from the area (4.5)
 - e. Smells of food, fire, and incense (4.4)
 - f. Condition of repairs made to the structures (3.9)
 - g. Discarded ration containers (5.0)
 8. Reports the presence of supplies or equipment in the area.
 - a. Types of weapons (4.8)
 - b. Number of weapons (4.8)
 - c. Ammunition and kind (4.6)
 - d. Food (4.4)
 - e. Clothing (4.4)
 - f. Cooking utensils, tools, etc. (4.5)
 9. Reports trails around the structure area.
 - a. Number of trails leading to and from the area (4.4)
 - b. Direction of each trail (4.2)
 - c. Location of the trails in relation to the area (4.0)
 - d. Condition of the trails (4.2)
 10. Reports how recently the structures were built, by using the following indicators:
 - a. Condition of the structures (4.3)
 - b. New or old trails (4.4)
 - c. Type of construction (4.2)
 - d. Condition of the camouflage (4.2)
- D. Spot Report for Anti-Aircraft Weapons
1. The aeroscout observer must be able to give a spot report for anti-aircraft weapons. (4.5)
 2. Reports the number of weapons by:
 - a. actual count (3.7)
 - b. estimating (4.5)
 3. Estimates the number of personnel or weapons by knowing how many personnel are required to serve the weapons. (3.8)
 4. Estimates the number of personnel or weapons by the amount of fire being received. (4.5)
 5. Recognizes and reports the types of tactical emplacements for anti-aircraft weapons. (4.7)
 6. Reports the area of coverage the weapons have. (4.7)
 - a. Altitude covered by the weapons, using the aircraft altimeter readings as a reference (3.9)
 - b. Length and width in meters of the area the weapon(s) will cover (4.1)

- 7. Reports the amount of fire being received. (4.7)
 - a. At what intervals fire is being taken (4.5)
 - b. Approximate number of rounds fired at each interval (4.0)
 - c. Rate of fire to indicate the type of weapon(s) firing (4.3)

II. BRIEFING THE FORWARD AIR CONTROLLER (FAC) AIRCRAFT

In many instances Air Cavalry scout elements were attached in support of Air Force tactical aircraft to seek out enemy targets. The scouts, acting as the "eyes," would then direct and assist the Air Force elements in bringing aerial fire upon the enemy. In performance of Air Cavalry missions, the aeroscout pilot requested aerial fire support from Air Force elements; in those situations the scouts would assist and even sometimes direct tactical Air Force elements in conducting airstrikes.

The following information provides an indication as to what information should be included in the briefing of the Forward Air Controller (FAC). A rating of the importance of the items to be reported is also provided.

1. The aeroscout observer must be able to brief and assist the FAC in conducting airstrikes against ground targets. (3.5)
 - a. Reports the number of targets (3.9)
 - (1) by actual count (3.9)
 - (2) by estimating (4.4)
 - b. Identifies the target(s). (4.9)
 - (1) Disposition of enemy troops (4.7)
 - (2) Bunkers or fighting positions (4.9)
 - (3) Structures and type (4.7)
 - (4) Anti-aircraft weapons (4.7)
 - (5) Caches (4.4)
 - c. Reports area to be covered (4.5)
Gives length and width of the area in meters (4.2)
 - d. Reports the type of fire expected to receive. (4.4)
 - (1) Number of weapons (4.1)
 - (2) Location of weapons (4.4)
 - (3) Type of weapons (4.7)
 - e. Recommends the types of aerial bombs to be employed. (3.6)
2. The aeroscout observer must know what types of aerial bombs are most effectively used against specific types of targets. (4.0)

(NOTE: The aeroscout observers surveyed indicated they would recommend the following types of bombs to be used against these specified targets or situations)

 1. Point detonating bombs against structures and vehicles.
 2. Delayed fuse bombs against bunkers, caves, and tunnels, armor vehicles, and penetration of trees or heavy foliage.
 3. Variable Time (VT) fuse against light vehicles or enemy troops in the open.
 4. Napalm against enemy troops in heavy foliage and bunkers, wooden structures, foxholes, and destruction of food crops.
 5. Cluster Bomb Unit (CBU) against enemy troops in open or heavy foliage, light vehicles, troops in foxholes, and troops under light foliage.
 6. Delayed fuse bombs mixed with VT for penetration of trees and heavy foliage.
 7. Napalm mixed with delayed fuse bombs for troops in bunkers.

III. DIRECTING TACTICAL AIR COMMAND (TAC) AIRSTRIKES

In some instances the aeroscout pilots had to direct tactical airstrikes due to the absence of an FAC aircraft or when the FAC had to return to base for refueling or due to aircraft malfunctions. The briefing to the tactical air elements would be the same as for the FAC as specified in Section II. In this section the job requirements are specified along with a rating as to the importance of each of the job elements necessary to accomplishing the job requirements for directing Tactical Air Command (TAC) airstrikes.

1. The aeroscout observer must be able to direct TAC airstrikes. (3.6)
 - a. Knows how to mark the location of friendly ground elements. (4.3)
 - (1) Knows the aeroscout pilot techniques for marking friendly ground elements for TAC. (4.2)
 - (NOTE: The aeroscout pilot would use the same techniques for marking the friendly ground elements in FAC.)
 - (2) Knows how to contact and advise the ground units to mark their own locations. (4.6)
 - b. Marks target or target area for initial airstrike. . . . (4.6)
Marks target or target area, using white phosphorous or smoke grenades. (4.8)
 - c. Senses and adjusts the aerial fire support. (4.0)
 - (1) Knows the correct procedures and applies them correctly for sensing and adjusting airstrikes. (3.7)
 - (2) Knows the correct procedures for informing the TAC aircraft to adjust their airstrikes. (3.7)
 - (3) Re-marks target or target area if required. (4.3)
2. The aeroscout observer must be able to give a bomb damage assessment report to the tactical air units. (4.5)
(NOTE: Provides FAC and BDA when scouts are working with an FAC aircraft.)
 - a. Reports number of targets destroyed (4.5)
 - b. Items destroyed (4.5)
 - c. Size of items destroyed (3.9)
 - d. Whether bombs were surface, sub-surface, or VT (3.2)
 - e. Number of personnel killed (4.5)
 - f. Targets remaining (4.7)

IV. BOMB DAMAGE ASSESSMENT (BDA) REPORT

The aeroscout observer is required to perform, at times, reconnaissance of an area which has recently sustained an airstrike or artillery barrage. In this section a reporting format and a rating of the importance of each element of the bomb damage assessment (BDA) report is provided.

1. The aeroscout observer must be able to give a BDA report. (4.6)
 - a. Reports the number destroyed (3.8)
 - (1) By actual count (4.5)
 - (2) By estimating (4.3)
 - b. Items destroyed (4.4)
 - c. Size of the area or items destroyed, if bunkers and structures (4.4)
 - d. Gives width, height, and length in meters of the bunkers and structures (3.7)
 - e. Items not destroyed (4.9)
2. Must be able to identify the types of bombs or artillery used. (3.0)
 - a. Reports if surface or sub-surface bursts, by using the following indicators:
 - (1) Size or depth of hole in the ground (3.9)
 - (2) Size of the area destroyed (3.9)
 - (3) Amount of items on ground surface destroyed (4.1)
 - b. Reports if air burst, by using the following indicators:
 - (1) Amount of trees or foliage destroyed (4.3)
 - (2) Amount of surface area covered (3.5)
3. Must be able to evaluate and report if additional fire support is required. (4.9)

V. AIR CAVALRY OPERATIONS

1. The aeroscout observer must know the methods and procedures for performing low-level mission planning. (3.7)
2. The aeroscout observer must be able to classify bridges from the air. (4.7)
3. The aeroscout observer must know what information is required in performing a route reconnaissance. (4.9)
4. The aeroscout observer must know the methods and techniques for performing night reconnaissance missions. (4.1)
5. The aeroscout observer must know the principles, methods, and techniques involved in the conduct of reconnaissance missions as performed by the:
 - a. Armored Cavalry Squadron (3.9)
 - b. Armored Cavalry Troop (3.9)
 - c. Air Cavalry Squadron (4.2)
 - d. Air Cavalry Troop (4.4)
 - e. Air Cavalry Scout Platoon (4.8)
 - f. Air Cavalry Scout Section (4.8)
6. The aeroscout observer must know the principles, methods, and techniques involved in the conduct of security operations as performed by the:
 - a. Armored Cavalry Squadron (4.1)
 - b. Armored Cavalry Troop (4.1)
 - c. Air Cavalry Squadron (4.2)
 - d. Air Cavalry Troop (4.4)
 - e. Air Cavalry Scout Platoon (4.6)
 - f. Air Cavalry Scout Section (4.6)
7. The aeroscout observer must know the principles, methods, and techniques involved in the conduct of economy of force missions as performed by the:
 - a. Armored Cavalry Squadron (3.8)
 - b. Armored Cavalry Troop (3.8)
 - c. Air Cavalry Squadron (3.9)
 - d. Air Cavalry Troop (4.0)
 - e. Air Cavalry Scout Platoon (4.3)
 - f. Air Cavalry Scout Section (4.3)
8. The aeroscout observer must know the principles, methods, and techniques involved in the conduct of offensive operations as performed by the:
 - a. Armored Cavalry Squadron (3.9)
 - b. Armored Cavalry Troop (3.9)
 - c. Air Cavalry Squadron (4.0)
 - d. Air Cavalry Troop (4.1)
 - e. Air Cavalry Scout Platoon (4.2)
 - f. Air Cavalry Scout Section (4.1)
9. The aeroscout observer must know the principles, methods, and techniques involved in the conduct of defensive operations as performed by the:
 - a. Armored Cavalry Squadron (3.9)
 - b. Armored Cavalry Troop (3.9)
 - c. Air Cavalry Squadron (4.0)

- d. Air Cavalry Scout Platoon (4.4)
- e. Air Cavalry Scout Section (4.4)
- 10. The aeroscout observer must know the principles, methods, and techniques involved in the conduct of stability operations as performed by the:
 - a. Armored Cavalry Squadron (3.8)
 - b. Armored Cavalry Troop (3.8)
 - c. Air Cavalry Squadron (3.9)
 - d. Air Cavalry Scout Platoon (4.2)
 - e. Air Cavalry Scout Section (4.1)
- 11. The aeroscout observer must know the principles, methods, and techniques involved in the conduct of air escort operations as conducted by the:
 - a. Air Cavalry Squadron (4.3)
 - b. Air Cavalry Troop (4.4)
 - c. Air Cavalry Scout Platoon (4.6)
 - d. Air Cavalry Scout Section (4.6)
- 12. The aeroscout observer must know the principles, methods, and techniques involved in the conduct of night operations as performed by the:
 - a. Armored Cavalry Squadron (3.7)
 - b. Armored Cavalry Troop (3.7)
 - c. Air Cavalry Squadron (3.8)
 - d. Air Cavalry Troop (3.8)
 - e. Air Cavalry Scout Platoon (4.1)
 - f. Air Cavalry Scout Section (4.1)
- 13. The aeroscout observer must know the methods and techniques involved in performing a convoy cover mission. (4.7)
- 14. The aeroscout observer must know the methods and techniques for performing aerial radiological and chemical monitoring and detection surveys to include the hazards of radiation fallout. (3.6)
- 15. The aeroscout observer must be able to use the IM 174 and IM 93 radiac meters. (3.1)
- 16. The aeroscout observer must be able to identify the organizational components of the:
 - a. Infantry Brigade (3.8)
 - b. Mechanized Infantry Brigade (3.7)
 - c. Armor Brigade (3.7)
 - d. Infantry Battalion (3.9)
 - e. Mechanized Infantry Battalion (3.8)
 - f. Armor Battalion (3.8)
 - g. Infantry Company (4.1)
 - h. Mechanized Infantry Company (3.8)
 - i. Armor Company (3.8)
- 17. The aeroscout observer must be able to identify the organizational components of the:
 - a. Armored Cavalry Squadron (3.9)
 - b. Armored Cavalry Troop (3.9)
 - c. Air Cavalry Squadron (4.0)
 - d. Air Cavalry Troop (4.0)
 - e. Air Cavalry Scout Platoon (4.3)
 - f. Air Cavalry Scout Section (4.3)

18. The aeroscout observer must know the principles, methods and techniques for conducting tactical operations as performed by the:
 - a. Infantry Brigade (3.5)
 - b. Mechanized Infantry Brigade (3.4)
 - c. Armor Brigade (3.4)
 - d. Infantry Battalion (3.4)
 - e. Mechanized Infantry Battalion (3.4)
 - f. Infantry Company (3.6)
 - g. Mechanized Infantry Company (3.4)
 - h. Armor Company (3.4)
- The aeroscout observer must:
19. Know the methods and procedures for working with allied forces. (4.7)
20. Know the methods and procedures for directing attack helicopters. (4.9)
21. Know the methods and techniques for performing low-level aerial scouting. (5.0)
22. Know the methods and techniques for searching for targets during low-level flight. (5.0)
23. Know the operational characteristics and composition of enemy units. (4.8)
24. Be able to operate and employ night vision equipment used by Air Cavalry elements. (4.5)
25. Be able to operate electronic surveillance equipment used by Air Cavalry units. (3.9)
26. Be able to identify the different types of aerial formations. (3.9)
27. Know the aeroscout observer duties and responsibilities while flying in aerial formations. (5.0)
28. Know the methods and techniques for reconnaissance of rivers and waterways. (4.5)
29. Be able to identify the different types of attack helicopters and know their capabilities. (4.7)
30. Be able to identify the types of Air Force tactical aircraft and know their capabilities. (3.6)
31. Know the criteria for selection and organization of an Air Cavalry assembly area. (4.1)
32. Know the types of air marches and how they are conducted. (3.2)
33. Know the principles involved in the conduct of combined arms tactical operations. (3.9)
34. Know the methods and techniques of working with ground elements. (4.6)
35. Be able to advise and direct ground elements in performance of their mission. (4.5)
36. Know the methods used for classifying roads. (4.1)
37. Know the methods and techniques for inserting range elements. (4.6)
38. Know the methods and techniques for performing combat extractions. (4.9)
39. Be able to identify the organizational components of supporting artillery elements. (3.5)
40. Know the principles, methods, and techniques of integrating Air Cavalry with tactical air, artillery, and ground forces in conducting ground operations. (3.7)
41. Know the capabilities of coverage an Air Cavalry unit can provide in a combined arms operation. (4.0)

VI. AIRCRAFT WEAPONS SUBSYSTEM

1. The aeroscout observer must be able to perform the following tasks for the aircraft weapons subsystem:
 - a. Disassemble and assemble (4.8)
 - b. Load and unload (5.0)
 - c. Correct malfunctions and stoppages (4.9)
 - d. Perform first echelon maintenance (4.5)
 - e. Perform second echelon maintenance (4.1)
 - f. Boresight the weapons subsystem (4.5)
 - g. Arm and clear the weapons subsystem (4.9)
 - h. Perform dry fire checks (4.5)
2. The aeroscout observer must know the safety rules governing the weapons subsystem and handle the ammunition properly. (4.9)
3. The aeroscout observer must know the ballistic characteristics of the various kinds of ammunition when fired from the aircraft. (4.3)
4. The aeroscout observer must know the weapons subsystem characteristics. (4.4)
5. The aeroscout observer must know the safety parameters of the ammunition when firing in support of ground troops. (5.0)

VII. AERIAL ARMAMENT, ARTILLERY, AMMUNITION, GRENADES, AND DEMOLITIONS

The aeroscout observer must:

1. Be able to identify the types of aerial armament available for fire support. (4.7)
2. Know the characteristics of each type of aerial armament. (4.4)
3. Know what types of aerial armament are best to use against specific targets and target configurations. (4.2)
4. Be able to identify and use all types of grenades and demolitions used by aeroscouts. (5.0)
5. Know and use the rules of safety and handling of grenades and demolitions in the aircraft. (5.0)
6. Be able to identify the types of artillery rounds available for fire support. (3.9)
7. Know the characteristics of each type of artillery round available for fire support. (3.9)
8. Be able to request the proper artillery round for use against specific targets and target configurations. (3.9)
9. Know and apply the safety parameters and procedures which could affect the safety of the aircraft when operating with or near:
 - a. Aerial armament systems to include tactical air fire (4.9)
 - b. Artillery and naval gunfire (4.7)
 - c. Demolitions (4.9)
 - d. Grenades (5.0)
10. Know and apply the safety parameters and procedures for ground elements when requesting supporting fires, or when using grenades or demolitions in support of ground operations. (4.9)
11. Know and apply the safety parameters and procedures for air elements when aerial armament, artillery and naval gunfire, demolitions, or grenades are being utilized in the air elements area of operation. (4.7)
12. Know the methods and techniques used for delivery of aerial armament. (4.5)
13. Be able to rig CS gas canisters. (4.6)
14. Know the characteristics and safety handling of CS canisters. (4.5)

VIII. COMMUNICATIONS

The aeroscout observer must:

1. Be able to identify and place into operation the radios in scout helicopters. (4.9)
2. Know the frequencies with which the aircraft radios will net. (4.7)
3. Be able to install and remove all radios. (4.3)
4. Be able to use proper radio telephone procedures. (4.7)
5. Be able to use the radio intercom system and radio microphone switches. (4.9)
6. Be familiar with a SOI and be able to use the information contained in it. (4.8)
7. Know how radio nets are established and the procedures covering them. (3.8)
8. Be able to perform first echelon maintenance on all scout helicopter radios. (2.9)
9. Know the characteristics of each radio system:
 - a. FM (4.9)
 - b. UHF (4.9)
 - c. VHF (4.7)
 - d. Auto direction finder (4.2)
 - e. IFF (4.3)
10. Be able to maintain and place into operation the survival radio. (4.8)
11. Know and apply radio transmission security measures and be able to use brevity codes and authentication tables. (4.2)

IX. MAP READING AND NAVIGATION SKILLS

The aeroscout observer must:

1. Be able to perform terrain interpretation from topographical maps and map supplements. (3.9)
2. Be able to identify terrain and objects, using aerial photographs. (3.8)
3. Be able to orient aerial photographs with topographical maps. (3.4)
4. Be able to use pictomaps. (3.5)
5. Be able to use medium and large scale topographical maps. (3.8)
6. Be able to determine the aircraft location and direction of movement, using maps or map supplements. (4.0)
7. Be able to select and use near and far checkpoints in performing aerial navigation. (4.1)
8. Be able to perform a map reconnaissance before accomplishment of a mission. (3.8)
9. Be able to report the location of objects, using a six-digit grid coordinate. (3.9)
10. Be able to report the location of objects, using an eight-digit grid coordinate. (3.7)
11. Be able to use all aspects of basic map reading that apply to usage in an aircraft. (3.7)
12. Be able to use the methods and procedures utilized in air navigation and in maintaining flight orientation. (3.7)

X. AERIAL ADJUSTMENT OF INDIRECT FIRE

The aeroscout observer must:

1. Be able to request and adjust fire support, using the correct forward observer procedures. (4.0)
 - a. Grid method of target location (4.3)
 - b. Gun target (GT) link for adjustment of artillery (3.7)
2. Be able to perform the preflight preparations and coordinations required for performance of an indirect fire support mission. (4.0)
3. Be able to request and adjust naval gunfire. (3.0)
4. Be able to identify and use the various types of artillery fire that can be provided. (3.5)
5. Be able to request the correct ammunition for maximum target destruction. (3.7)
6. Know the ballistic characteristics of each type of artillery round. (3.6)
7. Be able to sense and adjust direct fire ground weapons. (3.6)
8. Be able to sense and adjust aerial rocket artillery. (4.0)
9. Be able to sense and adjust tactical air direct fire. (3.9)
10. Know the procedures for fire planning, selection, and coordination of fire support from multiple delivery systems. (3.5)

XI. VISUAL DETECTION AND RECOGNITION SKILLS

The aeroscout observer must:

1. Know the methods and techniques of searching for targets during low-level flight. (5.0)
2. Know what terrain factors and target characteristics contribute to, or detract from, target acquisition. (4.6)
3. Know what effects weather has on aerial surveillance. (4.5)
4. Be able to identify the following categories of enemy weapons, vehicles, and aircraft:
 - a. Anti-aircraft weapons (5.0)
 - b. Tactical non-armored wheeled vehicles (4.4)
 - c. Transportation and supply wheeled vehicles (4.2)
 - d. Light armored vehicles, wheeled or track (4.5)
 - e. Heavy armored and self-propelled artillery weapons (4.5)
 - f. Artillery and missile emplacements (4.8)
 - g. Mortar type weapons (4.9)
 - h. Recoiless weapons (4.9)
 - i. Small arms (4.7)
 - j. Low performance aircraft (4.6)
 - k. High performance aircraft (4.5)
5. Be able to identify military uniforms, including identification of type of military unit, rank of individuals, type of uniform. (4.0)
6. Be able to identify the following types of man-made installations:
 - a. Airstrips, including hasty types (4.5)
 - b. Bunkers (5.0)
 - c. Fighting positions (5.0)
 - d. Building structures (4.6)
 - e. Bridges (4.2)
 - f. Type of roads and prepared trails (4.9)
 - g. Trench lines (4.8)
 - h. Minefields (4.7)
 - i. Gun emplacements (5.0)
 - j. Supply installations (4.5)
 - k. Observation posts (4.6)
 - l. Obstacles and barriers (4.7)
 - m. Defoliated and bombed-out areas (4.7)
7. Be able to identify the following natural terrain features:
 - a. Caves (4.8)
 - b. Streams and waterways (4.9)
 - c. Natural trails (5.1)
 - d. Types of vegetation and cover (4.5)
 - e. Types of terrain features (5.0)

XII. FIRST AID

The aeroscout observer must be able to:

1. Treat puncture wounds. (4.8)
2. Treat burns. (4.7)
3. Treat fractures. (4.5)
4. Perform a tracheotomy. (3.0)
5. Perform artificial respiration:
 - a. Closed chest heart massage (4.6)
 - b. Mouth-to-mouth resuscitation (4.9)
6. Perform treatment for shock. (4.9)
7. Perform all types of man-carries. (4.9)
8. Identify and use all items in the aircraft First Aid Kit. (5.0)
9. Give patient care for casualties who cannot be evacuated to a medical treatment facility. (5.0)
10. Apply the four life-saving steps. (5.0)
11. Treat and care for casualties with major wounds. (4.8)

XIII. AEROSCOUT OBSERVER RATINGS OF MINIMUM FLIGHT REQUIREMENTS

There has been much discussion as to whether or not the aeroscout observer should have a minimum amount of flight training so that he would possibly take over control of the aircraft in an emergency. Almost every aeroscout observer interviewed during the course of this study had flight skills. From the previous interviews, it appears that if the observer learns to fly OJT in a combat situation, then some means should be taken to identify the minimum skill requirements for inclusion into an aeroscout observer training program.

In trying to identify the minimum skills required for flight performance, one condition was specified: The aircraft must be moving at an airspeed of 20 knots or better. It was felt that if the pilot was hit while the aircraft was moving at less than 20 knots, the observer would not be able to react quickly enough to regain control.

1. The aeroscout observer must be able to fly the aircraft in an emergency when the aeroscout pilot is unable to perform his duties, due to injuries or other incapacitating factors. (5.0)
 - a. Must be able to take control of an aircraft moving at an airspeed of 20 knots or more. (4.9)
 - (1) Must be able to maintain a standard rate of climb of 500 FPM, with an allowable error of 100 FPM. (4.4)
 - (2) Must be able to apply the necessary power to acquire a standard rate of climb. (4.7)
 - b. Must be able to maintain a heading within 10-15 degrees. (4.7)
 - (1) Must be able to maintain a heading by using the radio magnetic indicator. (4.1)
 - (2) Must be able to maintain a heading by using the magnetic compass. (4.5)
 - c. Must be able to maintain the aircraft in a straight and level altitude. (4.5)
 - (1) Must be able to maintain a specified altitude within 100 feet. (4.5)
 - (2) Must be able to apply the necessary power to maintain altitude. (5.0)
 - (3) Must be able to maintain an airspeed of 80 knots, plus or minus 5 knots. (4.7)
 - d. Must be able to initiate turns while maintaining airspeed and altitude. (4.3)
 - (1) Must be able to perform a two-minute turn. (3.9)
 - (2) Must be able to perform a four-minute turn. (4.1)
 - (3) Must be able to maintain an altitude within 100 feet while performing a turn. (4.6)
 - (4) Must be able to apply the necessary power to maintain altitude during a turn. (5.0)
 - (5) Must be able to maintain an airspeed of 80 knots, plus or minus 10 knots, while performing a turn. (4.6)
 - e. Must be able to perform a running landing. (4.7)
 - (1) Must be able to make a normal approach and terminate it at a designated area. (4.0)
 - (2) Must be able to keep glide angle as shallow as possible. (4.2)
 - (3) Must be able to maintain an airspeed not to exceed 30 knots and not less than 20 knots. (4.4)

- (4) Must be able to maintain the aircraft in a straight altitude, using the pedal controls. (4.1)
 - (5) Must be able to use as little ground run as possible. (4.3)
- f. Must be able to perform low-level autorotations. (4.1)
 - (1) Must be able to maintain an airspeed within five knots. (4.4)
 - (2) Must be able to keep rotor RPM in the green. (4.8)
 - (3) Must know the procedures and be able to regain loss of rotor RPM. (4.9)
 - (4) Must know the procedures for, and be able to, eliminate too much rotor RPM. (4.9)
 - (5) Must be able to perform deceleration. (4.7)
 - (a) Must know at what altitude to do so (4.7)
 - (b) Must know to what extent to do so (4.7)
 - (6) Must be able to cushion the aircraft (4.3)
 - (a) Must know at what altitude to do so (4.3)
 - (b) Must know to what extent to do so (4.3)
- g. The aeroscout observer must be able to shut down the aircraft. power system after performing a landing:
 - (1) Must know the procedures for system shut-down (4.7)
 - (2) Must be able to neutralize aircraft controls (4.7)
- h. The aeroscout observer must understand the meaning and be able to respond properly to all red and green line indicators for all engine instruments. (4.7)

XIV. AIRCRAFT MAINTENANCE

The aeroscout observer must:

1. Be able to perform all first echelon maintenance on the aircraft:
 - a. Preflight (4.0)
 - b. Post flight (4.0)
 - c. Daily (4.1)
2. Be able to perform all second echelon maintenance on the aircraft. (3.3)
3. Know the safety regulations and use the correct safety procedures involving fuels and lubricants. (4.5)
4. Know the safety rules and use the correct procedures governing aircraft ground handling. (4.7)
5. Be able to fill out the aircraft log book. (4.1)
6. Be able to fill out all required aircraft maintenance forms. (4.0)
7. Be able to perform sling-out procedures for evacuation of the aircraft during recovery operations. (3.9)
 - a. Be able to drain the fuel cell. (4.1)
 - b. Be able to take off the main rotor blades. (3.8)
 - c. Be able to select the correct positioning for the aircraft for clearance. (4.2)
8. Be able to understand the meaning of and to use all arm and hand signals used in directing and signaling the aircraft. (4.3)
9. Be able to refuel the aircraft using the aircraft refueling kit. (4.4)
10. Be able to perform the duties and procedures required for performance of fire guard. (3.6)
11. Be able to refuel the aircraft using the proper procedures. (4.6)

XV. AIRCRAFT LOADING

1. The aeroscout observer must be able to verify that the aircraft is kept mission-loaded by seeing that all equipment is stowed in its proper place. (5.0)

(NOTE: The aeroscout observers listed the equipment they normally carried during combat missions. The aeroscout observer should check to see that all equipment is maintained and stowed properly.)

Equipment Load List:

- M-16, CAR 15, M-79 weapons
- Caliber .38 or caliber .45 pistols
- Smoke grenades
- White phosphorous grenades
- CS grenades
- Concussion grenades
- Incendiary grenades
- TNT demolitions
- Mirror
- Strobe light
- Extra rations
- Water
- Pen gun flares
- Survival kit
- Survival knife
- First Aid kit
- Magazines for M-16, CAR 15, loaded with ammunition, spark ammunition for M-16, CAR 15, M-79 grenade launcher
- Spare ammunition for caliber .38 or caliber .45 pistols
- M-60 machine gun with spare parts and ammunition
- Flight helmets
- Maps of area of operation
- SOI
- Sunglasses, when required
- Compass (AGFT)
- Pencils and grease pencils
- Notebook or writing pad
- Binoculars (Note: A third of the aeroscout observers listed this item as useful but not essential.)
- Aviation protective masks
- Survival radio

2. The aeroscout observer must be able to properly put on and maintain the aviation protective mask. (4.4)

XVI. COMBAT INTELLIGENCE

The aeroscout observer must:

1. Be able to identify the basic organizational structures of enemy combat and ground support units. (4.4)
2. Know the proper procedures for performing a terrain analysis. (4.3)
3. Know the performance requirements and characteristics of enemy weapons. (4.8)
4. Know and be able to use the correct procedures for reporting any unusual items of enemy equipment. (4.9)
5. Know the procedures and information required for intelligence debriefings. (4.5)
6. Know the methods and procedures which govern the enemy's small unit tactical doctrine. (4.2)
7. Know the role the aeroscout observer plays in the overall intelligence collection system. (4.7)

XVII. EMERGENCY PROCEDURES, SURVIVAL, ESCAPE, AND EVASION

The aeroscout observer must:

1. Be able to perform all evacuation and destruction procedures for all on-board equipment and documents. (5.0)
2. Be able to perform all emergency procedures in preparation for a crash landing. (5.0)
3. Be able to perform all duties and procedures concerning the aircraft and security after the aircraft has crashed or landed. (5.0)
4. Be able to use all items in the survival kit. (4.8)
5. Know the various categories of unit SOPs concerning what to do in the event of an emergency situation or condition. (4.5)
6. Be able to perform all the basic techniques for survival and evasion. (4.9)
7. Be able to use rescue equipment for extracting personnel from emergency situations, or where an aircraft cannot land. (4.7)
8. Know how the code of conduct relates to survival, escape, and evasion. (4.4)

XVIII. INDIVIDUAL WEAPONS

1. The aeroscout observer must be able to perform the following tasks for the M-16 rifle, CAR 15 rifle, M-203 rifle and grenade launcher, M-60 machine gun, M-79 grenade launcher, caliber .38 pistol, and caliber .45 pistol:
 - a. Disassemble and assemble (4.9)
 - b. Preventive maintenance (4.9)
 - c. Load and unload (5.0)
 - d. Apply immediate action (5.0)
 - e. Correct malfunctions and stoppages (5.0)
 - f. With the exception of the pistols, the aeroscout observer must be able to place effective fire on stationary and moving targets from the air, as well as on the ground. (5.0)
 - g. With the pistols, the aeroscout observer must be able to place effective fire on surprise close-in targets. (4.9)
2. The aeroscout observer must be able to handle all weapons, complying with all safety requirements. (5.0)
3. The aeroscout observer must know the weapons and ballistic characteristics for all of the above weapons. (4.8)

XIX. AIRCRAFT INSTRUMENTS AND COMPONENTS

The aeroscout observer must:

1. Be able to identify scout helicopter aircraft components and instruments. (4.3)
2. Be able to explain the function of the aircraft controls and how they affect the flight of the helicopter. (4.3)
3. Be able to read the instruments and explain the meaning of the readings to include normal as well as abnormal operating conditions. (4.6)
4. Be able to monitor the instruments during aircraft ground and flight conditions. (4.5)
5. Be able to make the proper responses to specified instrument or master caution lights. (4.3)

XX. MARKING OF TARGETS

The aeroscout observer must:

1. Be able to mark targets when both the pilot and the observer know the target location. (4.7)
 2. Be able to mark as soon as receiving fire from a known or unknown target location. (5.0)
- (NOTE: This type of marking serves as a quick reference point from which to adjust subsequent fire support.)
3. Follow all safety procedures for handling of demolitions during flight. (5.0)
 4. Know how aircraft velocity affects the ballistic flight of marking demolitions. (4.5)